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THE MACROLEPIDOPTERA
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Introduction.

The giant continent of America, which extends from the eternal snows of the arctic polar region further south than any other continent, is better adapted than any other to the production of an inexhaustible wealth of the most varied animal forms. Open almost everywhere to the moisture-laden east winds from the Atlantic, it admits the fertilising rains far into the interior, and thus develops an extensive and finely branched network of watercourses, which, in conjunction with the varying conditions of climate and warmth in the successive zones, call into being a fauna of quite unique variety.

Originating from the circumpolar arctic fauna, the entire fauna from southern Canada to Texas acquires a character approaching that of Europe and central Asia. Not only that the dominant animal forms in temperate North America belong, for the most part, to groups which also play a principal rôle in the temperate zone of the Old World, the geographical distribution shows also here the most striking analogies. Among the Lepidoptera, *Argynnis, Melitaea, Vanessa, Apatura,* Arctiids and Catocalas figure prominently in both, and as a single outstanding difference, the preponderance of the Hesperids in America, as against the prevalence of Satyrids in the Old World, is manifest even on superficial consideration. But the sum total of the forms to be observed in the northern temperate zone is almost equal in both hemispheres, while one half of the eastern temperate lands — corresponding roughly to the whole of the western — contains about the same number of Lepidoptera as that, namely about 6500 forms.

This is changed as soon as we reach the tropical zone in America. Quite suddenly all resemblance to the fauna of the Old World vanishes. The singular and highly characteristic *Morpho, Ithomia, Melinaea* and *Heliconius, Castnia* and *Glaucopis, Pericopis* and *Cyllopoda,* the wonderful forms of neotropical Erycinids the tailed Hesperids, etc., have no counterparts in the Old World. They give to the South American fauna such a distinct individuality, even compared with that of the cooler parts of North America (north of Mexico), that the lepidopterous fauna of South America may well be designated the most characteristic of the world. What its principal pecularities are, has already been pointed out in the introduction to this work, and will be further considered below.

That in spite of all this we have decided not to separate the North from the South American fauna, as has hitherto been done in zoogeography, under the terms Neotropical and Nearctic, is due to the fact that a basis for any sharp delimitation is wanting here, as it is between the Indian and Australian faunistic regions. Just as the limits there drawn by Wallace are arbitrary, so also in America the otherwise applicable principle of faunistic division fails us. Let us, for example, compare the conditions in America with those of the much more compact continent of Africa: south of the Sahara there is no species of *Euchloë,* no *Aporia,* no *Procris,* no true *Zygaena,* no *Vanessa,* no *Pararge,* no *Ocnogyna,* in short all the species are absent which in North Africa are the commonest, not to say the most obtrusive representatives of the butterfly world. On the other hand the north has no *Euphaedra,* no *Cymothoe* or *Euryphene,* all the groups of *Papilio* and Pierids which are distributed throughout the rest of Africa are wanting, we seek in vain for *Amauris,* which is so characteristic of the whole of tropical Africa, and so on.

In America there is no such insuperable barrier as is formed by the great Sahara desert of Africa, with its absence of vegetation. Thus we find the otherwise purely South American Neotropids pushing northwards into California, the genus *Heliconius* into Florida, while *Argynnis, Colias, Catocala,* etc., extend their range southwards on the heights of the Andes; in a word, the two faunas so encroach upon one another that we prefer to draw no boundary at all rather than an artificial one; and we do this so much the more willingly because these theoretical considerations fit in with a series of practical ones.

Among the characteristics of the lepidopterous fauna of America, which are most prominent in South America, we would mention its **richness in species.** It used to be said that the double continent of America alone contained about as many species as all the rest of the world. This comparison was applicable so long as we had not learned to distinguish all the numerous local forms of certain Malayan and Indo-Chinese butterflies, which result in the appearance of a single species, on all those larger and smaller islands of the Malay Archipelago, in a dress similar, yet with constant differences according to the locality. But since the species of the Old World have been split up into such a large number of races or local varieties, or subspecies, rainy- and dry-season forms, mountain forms and those of the lowlands, the more compact South America, being for the most part more regularly tempered, without pronounced rainy season, has lost very much of its preeminence.

Now when one takes into consideration that any butterfly, of whatever species, would be able to fly from Canada as far as to Cape Horn without meeting with any direct, insurmountable obstacle — neither such a sharply defined desert as separates Northern from Central and Southern Africa, nor a sea, as between Australia and India — it is not easy to understand how it is that we find Castnias, Neotropids, Hesperids or Catagrammas in almost every district of America in distinct forms, mostly unconnected with one another by transitions. In this is manifest a creative energy of unusual richness, such as occurs in no other country to the same extent.

The **lavish endowment** of its species with brilliant and conspicuous colours is the second principal characteristic of the American fauna. In India and tropical Africa there are also plenty of gay species, which fact we do not leave out of account; but while the Old World everywhere produces, side by side with the gay and richly ornamented forms, multitudes of others which are tawny, white or neutral brown in colour, many of the open places in the South American woods are alive with the little gold- and silver-marked Syntomids or the azure blue giant butterflies. None of the Old World species can vie with *Argopteron aureipennis* in its pure golden under surface, or show such rich adornment of silver as *Dione moneta*, or such brilliant blue ground colour as *Morpho cypris*. And even those colours which have not the metallic or silky gloss are nevertheless extremely elegant and pleasing in their arrangement. Very frequently they consist of bright red, orange or blue-green bands or longitudinal spots on a deep black ground, resulting in more quiet richness and fulness of colour than a stiffer, more overloaded scheme of markings. Such crude contrasts of colour as occur in the *Papilio agamemnon* group, in *Neurosigma* and in *Catphisus*, are rare in America. A deeply coloured, though almost always only unicolorous band suffices to make *Epicalia*, *Chlorippe* and *Prepona*, *Callicore* and *Adelpha* the most beautiful forms which a refined taste could imagine.

The phenomenon of mimicry, which was fully discussed in the introduction to the first part of this work, appears in America in an altogether special and characteristically modified manner. There are many localities in South America, often quite circumscribed in extent, in which almost all the lepidopterous species that occur in any numbers have one and the same wing-pattern indifferently, whether they be butterflies or moths, whether stoutly-built Swallowtails or weak Pierids or shy Nymphalids. In Colombia one may see flying about a single flowering shrub a number of butterflies all coloured and marked alike, but belonging to four entirely different groups. They are all black with an oblique scarlet band on the forewings. The first is a Pierid *(Pereute leucodrosyme)*, the second a Heliconius *(Heliconius melpomene)*, the third a Swallowtail *(Papilio euterpinus)* and the fourth *(Adelpha isis)* a species of Nymphalid allied to *Limenitis*. In certain districts of Southern Brazil a yellow band on the forewing and dentated longitudinal stripes on a brownish yellow ground provide the general scheme, which is followed by Pierids *(Perhybris, Dismorphia)*, Danaids *(Lycorea)*, Heliconians *(Heliconius narcaea)* and even some moths *(Chetone)*. I have elsewhere spoken of a tendency of certain districts to produce uniformity in their inhabitants, and although kindred phenomena are not wanting in India, or particularly in Africa, they are far less conspicuous there than in America.

Just as the present mammalian fauna of South America is wanting in gigantic forms, so too its Lepidoptera are for the most part of only medium size. Only in *Caligo*, *Morpho*, some Sphingids and the giant Noctuid *Thysania agrippina* do we find great dimensions attained; there are no actual parallels to the huge *Attacus*, or to *Ornithoptera* with its great uncouth females. And as in size, so also in shape there is not the same tendency towards grotesque, unintelligible forms as one is struck by in many genera of the Old World, such as *Leptocircus*, *Sericinus*, *Drurya antimachus*, etc. Beyond the development of tails in normally untailed families *(Nymphalidae, Erycinidae, Hesperidae)* there is little that is very strange in the aspect of the American Lepidoptera,

In addition to these peculiarities of the American fauna, there are some others which are not so difficult to explain. In a large number of districts, especially in South America, there are no regular wet and dry seasons. In the neighbourhood of Rio de Janeiro sudden changes are possible on almost any day of the year, and the rainless periods are variable both in their duration and in the time of their arrival. Thus the conditions there — as we have already briefly mentioned — do not lend themselves in the same pronounced way to the development of **seasonal dimorphism** as in many localities of the Old World, where the conditions of weather are perfectly regular, the rains and the heat of the sun being confined to certain months.

Polymorphism also does not seem, in another respect, to be developed to the same degree as in the Old World; namely, in its local conditions. Although in *Papilio lysithous*, for example, we observe the same conditions which obtain in many Indian species, namely that in different districts it mimics the different

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Aristolochia-Papilios which occur there — e. g. in South Brazil as *P. pomponius,* mimicking *P. perrhebus,* in Rio de Janeiro in the form *lysithous,* copying *P. agavus* — yet without doubt such cases are wanting in America as that of the Indian *P. memnon,* in which some 30 different forms of female belong to one almost constant male form.

The strict **localisation** of Lepidoptera in America is easily explained by the peculiarities of the conditions of vegetation. Like the Old World steppes, the prairies of North America and the Pampas of South America are not adapted to produce a great abundance of forms or even a moderate number of showy and elegant species. Hence we find *Morpho,* the larger Nymphalids, *Castnia,* etc., disappear rather suddenly from the district as soon as we leave the great Southern and Central American forest region. Hence, also, the West Indies, which are either poor in forests or altogether devoid of them, are far behind the neighbouring mainland in respect of their lepidopterous fauna, while conversely the East Indian Archipelago is especially rich in species.

It greatly surprises those who visit different parts of the American continent to notice the great **resemblance between northern and southern districts** which are separated by vast tracts of land differing entirely from both. The Argentine pampas produce species altogether analogous to those of the United States, often even the same species, while they are absent from the whole of the Neotropical forest region which intervenes. Almost at the same latitude where the last *Morpho* leaves us, whether northward or southward, we find *Colias, Pyrameis carye* and *Deiopeia* flying. *Euptoieta claudia* occurs both in the United States and in Uruguay in hardly distinguishable forms, while in the intervening tropical South America it is entirely absent, being supplanted by the very different *Eupt. hegesia.* Nothing analogous is known in the Eastern Hemisphere: the numerous Acraeas of South Africa vanish in the tropical zone and do not reappear north of the Sahara; *Argynnis,* which in America appears again in Chili and Argentina after missing the tropics, vanishes finally in the East on reaching the tropical region; neither South Africa nor Australia possesses any species of the Nymphalid group, which is so plentifully represented in the North. On the contrary the well-represented *Precis, Amauris,* etc., of South Africa do not reappear in North Africa or in Europe, and of other characteristic genera of the Old World, such as *Teracolus* and *Charaxes,* scarcely one species in a hundred extends from one temperate zone across the tropics to the other.

The rôle which the individual families play in the American fauna will be easily seen from the special part; attention need only be called here to a few points which result from a comparison of the fauna of the New World with that of the Old.

The **Papilios** of temperate North America surpass those of the corresponding latitudes of the Old World. San Francisco, St. Louis or Washington has two or three times as many species of *Papilio* as Spain, Algiers or Asia Minor, while on the other hand *Parnassius,* rich as it is in forms in the Old World, has only a few somewhat scattered, subordinate forms in the New.

The **Pierids** are pretty equally represented on both sides of the Atlantic, especially since some have been transplanted during the last century.

The **Danaids** show an extremely close parallelism. With only a single species crossing the 40th degree of N. latitude, their number so increases in the tropics as to become dominant, and the number of very closely related forms would be almost equally the same in the Western Hemisphere as in the Eastern if we reckoned the Neotropids, about to be mentioned.

But the **Satyrids** are considerably less prominent in the temperate zone of the New World than in that of the Old. In the tropics, where the Satyrids wane and tend to give place to other groups, the contrast becomes less.

Preeminent among American forms are the **Ithomiidae,** related to Danais, and which have been designated Neotropids, from their characteristic occurrence in the Neotropical region. Even the earliest naturalists who made any adequate observations in South America, such as Bates and Wallace, were astonished at the enormous number of individuals, as well as the multitude of species which occurred together in small and circumscribed localities; Bates even wondered how the species, often deceptively similar to one another, managed to find out their right mates for copulation. Haase, on morphological grounds, compares with this group, so rich in species, the genus *Hamadryas* of the Old World, which is equally poor in forms; from the biological standpoint it is better compared with *Euploea.*

The **Nymphalids,** as one of the most universal groups, occupy a prominent position in both hemispheres. It is hard to say on which continent their preponderance over certain other families of Rhopalocera is the most conspicuous. It is the Nymphalids which include most of the forms that are common to both hemispheres. *Vanessa antiopa, Pyrameis cardui* and *atalanta, Polygonia c-album, Argynnis triclaris, freija, frigga, chariclea,* etc., connect the American fauna with the eastern and to a certain extent form a bridge.

The **Erycinids** of the Old World do not come anywhere near the wealth and variety of forms to which this family attains in America. To little over 100 species of the Eastern Hemisphere there are above 1000 in the Western, and at the same time the former are comparatively uniform structurally while the latter show manifold differences. America not only produces a number of original forms in this family, but it is also rich in examples of mimicry, in which Erycinids copy members of the Nymphalids, Ithomiids and even protected Heterocera. Thus *Themone pais* mimics a *Mechanitis, Themone poecila* a *Phyciodes, Ithomeis* and *Compsotheria* copy Neotropids, *Lyropteryx olivia* resembles in flight a *Calodesma* of quite the same colouring, and the little *Syrmatia,* with their quick, buzzing flight, bear, as they dash past one, more resemblance to flies than to butterflies.

The **Lycaenids** show, in the northern Nearctic region, many forms belonging to the genus *Lycaena* or nearly related thereto; but as one proceeds further south *Thecla*-like forms increase, much as in the Old World. These Neotropical forms greatly exceed in size and brilliance the Indian *Arhopala.*

The most interesting American group is unquestionably the **Hesperids,** which in many South American localities occur in such a wealth of forms and individuals as to surpass, in variety and abundance, all the rest of the Lepidoptera. The long-tongued species appear to be the sole fertilising agents for some plants, and the picture of the white-flowered bushes thickly covered with black *Eantis* abides vividly in the memory of everyone who has collected in South America.

Among the Heterocera the Zygaenids are far less prevalent than the **Syntomids,** which are extremely well represented and often lavishly adorned with metallic colours. Here a wide field is opened for mimicry. The moths which are still commonly designated "Glaucopids" appear in the most wonderful garb, some copying the predacious Hemiptera, others beetles, but the largest number Hymenoptera. The strongest Hymenoptera in the world, the species of *Pepsis,* which wound bird-spiders with their sting and carry them off as food for their offspring, are copied by a very large number of Syntomid species. Under the name of "Marimbondo" this wasp is dreaded in America both by men and animals, on account of its terrible sting, so that in fact no better model could be found for protective resemblance. Entire genera of Syntomids, such as *Macrocneme,* almost exclusively copy these giant wasps.

The **Castniids** present, in some measure, a transition from the moths to the Hesperids. The true Castniids, such as the genera *Castnia, Gazera,* etc., are absolutely confined to America and indeed to its tropical and subtropical parts. We see in them moths with entirely the habits of butterflies, which not only feed, like many day-fliers, at flowers which grow in the sun, but also station themselves on points of vantage at the extremities of the foliage where they drive off their enemies, play with their own kind, and lay wait for the passing females.

The **Arctiids** of North America present many similar forms to those of the Old World, several genera and some species, such as *Arctia caja, Parasemia plantaginis, Phragmatobia fuliginosa,* being common to both hemispheres, without belonging to the holarctic polar fauna. The specifically American forms do not make their appearance in numbers till further south, where they appear of an entirely different build and colour; as *Ecpantheria* and *Halesidota,* which are specially developed in Central America, and the curious *Palustra,* whose larva is aquatic. But although the most singular forms of "tiger-moths" live in the tropics, the gayest and most beautifully marked are found in temperate North America, such as *Apantesis, Platyprepia, Haploa,* etc.

The **Lithosiids,** which in America, as in the Old World, are represented mostly by small forms, are often, especially in tropical America, brightly coloured and of diurnal habits. In North America itself scarcely 50 forms occur, they seem to reach the height of their development in the warm valleys of the Andes, just as in the East the slopes of the Himalayas have been shown to be particularly favourable to their production. No species are known which are common to both hemispheres; indeed hardly any genera, if we follow Hampson (as against Kirby and Dyar) in removing *Utetheisa* from the family *Lithosiidae.*

The **Liparids** of America, in so far as we accept the present composition of this family, are considerably less prevalent than those of the eastern world. *Ocneria dispar,* the "gypsy-moth", is an introduced species, whereas *Orgyja antiqua,* which is widely distributed in the west of the Old World, and reaches far north, is to be regarded as indigenous. We assume this to be so, although the species is common at some of the European ports (particularly Hamburg) and the larva is fond of spinning up on bales of merchandise, where the sluggish female also lays its eggs, so that every year large numbers are probably dispersed to the four winds. In the genus *Gynaephora* the Liparids of America possess the species *G. groenlandica* and *rossii,* which reach the farthest north of all the Heterocera -- perhaps of all Lepidoptera.

The **Limacodids,** a family of universal distribution, are very plentifully represented in South and Central America, and develop elegantly marked, though small forms, many of them with a silky or metallic gloss on the wings. From temperate America about 50 forms are known, which is about $^1/_{10}$ of the total of known species. From the whole of America perhaps three times as many are known, or over $^1/_3$ of the total of known forms. It is remarkable that the northern part of America produces a far larger number of forms than that of the Palaearctic Region, which in many districts is very poor in Limacodids; thus in the whole of Europe only two species occur, i. e. less than $^1/_2$ per cent. of the known species.

The **Psychids** as still constituted at present, do not form a homogeneous family. The case-making of the larvae and the degeneracy of the female are due to convergence, though they have repeatedly been taken to indicate relationship. In America the Psychids play only a small rôle; only 15 per cent. of the

200 known forms inhabit the western continent, and only about a dozen of these occur in temperate North America.

It might appear singular that a family whose females are each and all immovable should have such an enormous range as the Psychids, which are represented in the remotest islands, such as New Zealand, Teneriffe, etc., and often by characteristic species. But it must not be forgotten that their larvae are extremely active and endowed with great powers of resistance, and many, if not all the species are parthenogenetic. i. e. capable of propagating without previous copulation. Nothing would be more erroneous than to infer the existence of a submerged continent from the occurrence of the Psychids on both coasts of the Atlantic. Their transplantation from America to the Old World and vice versa could very easily be effected by drift-wood. I have fished out from the Plata River floating boughs on which a number of cases of *Oiketicus platensis* were spun up, some containing sound larvae, others living pupae. It appears that the larva is capable of making its case watertight. I found large Psychid cases on the coast of North-Shore in the harbour of Sydney, Australia, which were spun up on the rocks, and over which every wave washed at flood-tide; they contained uninjured larvae. Thus their transplantation by means of drift-wood is not at all improbable: indeed they are not even threatened by many special dangers for their long and troublesome voyage. Psychid larvae can fast for a very long time, and when this is no longer possible to them, any food is accepted. The larvae of *Amicta febretta,* which I took in numbers in North Africa from a dry desert-plant, were fed up to the pupal stage in Europe on pear-peel; and inasmuch as a single female Psychid is sufficient to increase the range of a species, the greater wonder is that no species of this family is cosmopolitan, indeed that there is none which is possessed by America in common with the Palaearctic fauna.

The **Lasiocampids** as a whole are not yet sufficiently well known to allow of our forming a definite judgment as to their distribution. Without doubt America has over one-third of the 800—1000 existing forms. With the very large number of species which are already known from South America, it must be assumed that a more thorough exploration of the interior of Brazil will bring to light many more. As at present constituted, the group is not even homogeneous, so that many alterations are to be expected when the Neotropical forms, in particular, are fully worked out. As the family is now constituted, America possesses numerous exceptionally interesting forms. The larvae of the genus *Megalopyge,* remarkable for their peculiar tufts of hairs, are dreaded in America on account of the inflammation which these hairs cause. In one lady who came under my treatment they had produced swellings on the arm and breast, with several days' fever, so that their effects even exceed in intensity those of the hairs of *Thaumatopoea.* Sometimes there is an unusually pronounced sexual dimorphism in this family, as in *Heliconisa pagenstecheri,* whose female was long known as *Dirphia costora.* In the New World, as in the Old, some of the Lasiocampids are of economic importance.

The **Saturnids,** of which there are somewhat over 400 species in all, are almost equally divided between the New World and the Old. In this magnificent group the relative richness of America is shown by its attaining, in the number of its Saturnids, to a total equalling those of the great continents of Asia and Africa combined. Against six for the whole of Europe, some 40 forms inhabit temperate North America. The Ceratocampids, too, which are related to the Saturnids, and of which there are about 50 forms, belong to America alone; whilst the Brahmaeids of the east possess hardly more than a dozen forms. On the other hand America is somewhat behind the Old World in respect of the true Bombycids.

The American **Sphingids,** in comparison with those of the Old World, show a proportion of 3 : 5, 370 out of about 1000 known forms occurring in the New World. The exhaustive work of Rothschild and Jordan has thrown a very full light on the distribution of this family. America is particularly rich in gigantic hawk-moths, such as *Pachylia, Cocytius, Pholus, Pseudosphinx,* etc. One would expect, from the extensive powers of flight of most Sphingids, that quite a number of representatives of this group would be common to both hemispheres, which, however, is not the case; only quite a few species, such as *Celerio lineata* and *gallii,* appear in both without any very material differences.

In the **Notodontids** we have another heterogeneous group, in the composition of which alterations will certainly be made — at least by its splitting up into several groups — when it is worked out morphologically with a regard for the finer anatomical details.*) It is therefore of little value to fix the number which belong to the Western Hemisphere, out of the 600 odd species at present placed in the Notodontids. They form by far the greater part; the genera *Rosema,* with grass-green forewings, *Nystalea,* with its noctuid habits, the North American *Datana, Heterocampa,* etc., are rich in species which play an important part in the western continent on account of their richness in individuals.

In the **Noctuids,** conditions are much the same as in the Old World, especially as described in dealing with the Palaearctic Noctuids (vol. III, p. 11): in the south more diurnal species, in the north duller coloured genera (*Mamestra, Acronicta, Agrotis, Hadena,* etc.) which sleep by day; but in the north, in addition, a wide distribution of the Catocalids, lightly sleeping night-fliers which are specially adapted for their resting posture, but have preserved their bright colour on the underside as well as on the hindwing, which is concealed beneath the grey forewing. In the tropics of America the Noctuids recede in point of numbers, as only a few groups, such as *Hyblaea, Laphygma, Prodenia,* etc., appear in large number at times; however, the western tropical species frequently develop gigantic forms, such as *Erebus* and before all *Thysania agrippina,* which has the largest expanse of wings of all the known Lepidoptera.

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*) As Packard has done for the North American species.

The **Geometrids** show a very uniform distribution throughout the world. Their relatively weak flight makes them insecure on islands, and is a hindrance and menace to their propagation in the smaller storm-beaten islets. This general rule holds also for America, and so does the other rule, that the generally duller and darker colours of the temperate climate give place to brighter and often beautifully marked colouring in the warmer regions. As many species extend far northwards, there is a possibility of communication between the two hemispheres in respect of their Geometrid fauna; and although there are far fewer Geometrids than Noctuids common to the two, yet several species, such as *Eugonia magnaria (alniaria), Hydria undulata, Anagoga pulveraria,* etc., occur in both without any essential differences.

Among the larger Geometrids, the genera *Azelina, Clysia, Oxydia, Prochoerodes* and *Sabulodes* are particularly prominent in America. In their habitus they borrow a good deal from the forms of other groups which inhabit the same region, but without showing any mimetic tendency. As in the Eastern Hemisphere, metallic colours are only developed exceptionally in the American Geometrids (*Ophthalmophora*); on the other hand we are confronted with true American schemes of colour and markings in the brightly coloured bands on a black ground which occur in *Scordylia, Nelo, Sangala,* etc.

The above is in broad outline a comparative picture of the American fauna and that of the Old World. It ought to be mentioned that some groups, such as the *Cymbidae,* are not represented at all in America; others, such as the Nyctemerids, only by a few forms, which might probably be better referred to some other group. It is very strange that the nearest representative of the tropical American genus *Urania* belongs to South-East Africa; cases like this belong to the at present still very numerous geographical puzzles.

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Diurna, Butterflies.

With the exception of the Neotropical Brassolids, all the American butterflies are day-loving insects. Even the dark-coloured Satyrid genera and the colourless *Haetera* and *Ithomia* fly by day, though in the dusky shade of the woods. What was said in the Introduction as to the colouring and the scheme of marking of the Lepidoptera of the New World, is applicable in a special degree to the colours of the frequently gorgeous butterfly-wings. In spite of the very considerable abundance of true Rhopalocera, they do not in America preponderate over the second group of Diurna, the Grypocera, to such an extent as in the Old World.

A. **Rhopalocera,** true Butterflies.

The differences from the Grypocera are given in vol. I, p. 7. The distribution of the Rhopalocera in America extends from Greenland to Cape Horn. In the islands lying to the south of this there do not appear to be any butterflies. These attain in the American genus *Morpho,* allied to the Satyrids, a high degree of development; among the Nymphalids we find in *Agrias* evidently modern forms, and among the Ithomiids the most prononced examples of Mimicry.

Division I: **Papilionina.**

The Papilionina do not in America attain the same dimensions as in the Old World, for example in the Indo-Australian *Ornithoptera.* The largest American Papilionid is *Pap. homerus,* an island species. The genus *Parnassius,* rather prominent in the north of the Eastern Hemisphere, is much less so in America. The Pierids are similar to those of the Old World in their habits, and extend, like these, far into the north polar region. (Seitz.)

Family I: **Papilionidae,** Swallowtails.

Palpi short, lying close to the head, occasionally long and projecting (*Teinopalpus,* North-India). Antennae of three types according to the structure of the segments: the fine sensory hairs beneath and laterally almost equally distributed over the proximal part of each segment, or there is a cavity on each side covered with sensory hairs (reminding one of the Nymphalids), or there is only one row of such cavities present (reminding one of the Pierids); the upperside scaled or naked. Mesothorax very strongly built, the sternum completely fused with the episternum, the suture (as in the Pierids) outwardly quite wanting. Fore legs fully developed; fore tibia with spur on the underside; claw simple, very rarely cleft as in the Pierids *); paronychium and pulvillus wanting. Cell of both wings closed; in the forewing the second discocellular (between the 1. and 2. radial) the longest, the 2. radial arising from the lower angle of the cell, the 3. discocellular standing in or almost in the prolongation of the median, hence four veins arising from the hinderside of the cell, upper submedian vein often present as a short transverse vein arising from the median near the base, 3. submedian vein short, free, running into the hindmargin; hindwing with precostal vein, and one submedian vein. — Egg round or flattened, without prominent sculpturing. — Larva before the first moult with rows of bristle-bearing tubercles, which in the later stages disappear, or are

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*) In one species of *Leptocircus.*

replaced by fleshy processes or hard spines; on the neck a fleshy, reversible fork of a red or yellow colour, secreting a scent, and being stretched out in defence (the osmaterium); lives free, but some species bend down the edge of a leaf so that a sort of tunnel is formed in which the larva conceals itself; some larvae are gregarious. — Pupa fastened at the anal extremity and by a thread encircling the thorax and wing-cases, or lying in a loose cocoon on the earth or just under its surface; three moveable abdominal segments.

The family is cosmopolitan, but only a few forms cross the polar circle. Except Africa, where the Aristolochia-Papilios are wanting (only Madagascar has one species), the tropics are characterised by their richness in that group and the Kite-Swallowtails, whilst the temperate zone of both hemispheres possesses in *Parnassius* a type which is not met with in the true tropics; *Baronia brevicornis,* indigenous to Guerro, West Mexico, is the most southerly form recalling *Parnassius.*

Whilst in the Old World there are quite a number of genera besides the large comprehensive genus *Papilio,* all the American forms belong to only four genera: *Papilio*, *Euryades*, *Parnassius* and *Baronia.*

1. Genus: **Papilio,** Swallowtails.

Forewing always with median spur (1. submedian), at least one of the discocellulars placed longitudinally; hindwing with precostal cell. All the species have the pupa attached by a girth. The so-called genus *Papilio* falls into 3 divisions, which are sharply separated from one another in the larva, pupa and imago. This natural classification was founded by Horsfield in 1856, but not recognised by later authors (Erich Haase excepted). The forms of the first group, the Aristolochia-Papilios, so tenacious of life, have a strong smell, and are often mimicked by species of the other two divisions, and in consequence of this similarity the models and mimics have been erroneously regarded by some authors as closely allied.

A. Aristolochia-Papilios.

Antenna without scales, underneath on both sides with a cavity on each segment. The outer ventral row of spines of the tarsi not separated from the dorsal spines by a spineless longitudinal depression. — Larvae on Aristolochia, rarely on allied plants; densely covered with very short hairs, velvety, only the head, the prothoracic plate and the legs being shiny; each segment with a belt of fleshy tubercles, which bear hairs, but no strong spines; the anterior tubercles often prolonged. — Dorsum of the pupa incurved, wing-case strongly expanding sideways; on each side of the abdomen dorsally a row of humps or lobes, which often form an almost unbroken ridge. — Tropical insects, represented in North America by 2 species *(P. philenor* and *polydamas).*

The American Aristolochia-Papilios are divided into 2 sharply characterised subdivisions.

Section A.

Body with red spots. Cavities of the antenna very distinct; precostal cell distally widened, cell of the hindwing more or less pointed. — Here belong most of the forms. They are almost all woodland species; some are only found in the shade of the forest. The butterflies are taken in open spaces in the woods, on their outskirts, and on the banks of rivers, where they frequent flowers, or imbibe moisture from the damp sand. The ♂♂ are generally good fliers, while the ♀♀ are mostly slow and heavy on the wing. Some species inhabit marshes, others occur only in dry, sandy places in the woods.

Ascanius-Group.

The species of the *ascanius*-group, with which we begin, have a spatulate tail. The two sexes are similar. The ♂ has on the hindwing a hindmarginal fold, covered with white wool.

columbus. **P. columbus** *H.-Sch.* (= gundlachianus *Fldr.*; grotei *Blake*) (1 a). The brightest coloured American *Papilio,* which may be recognised by the brilliant blue bands on the forewing. — The dark ash-grey larva is striped longitudinally, the head and thoracic legs are black; the black longitudinal stripes in part margined with white; the anterior and posterior segments bear long pointed tubercles which are partly white. — Flies in Cuba, and occurs not infrequently in the mountainous eastern part of the island, especially near the coast, where it is met with on flowers, and sometimes also drinking at pools.

ascanius. **P. ascanius** *Cr.* (1 a). A broad white band traverses both wings; on the hindwing it is more or less red. — The larva is light brown, and bears pointed tubercles on all the segments. The imago, which hitherto has only been observed in the province of Rio de Janeiro, flies in the neighbourhood of Rio over marshes, where it can only be followed with difficulty and often by wading in the water; the species of Aristolochia on which the larva feeds only grows in such situations. According to Mr. J. Arp the species is by no means scarce at Rio de Janeiro in these swamps, but only in exceptional cases goes far from them; and it is on account of this inaccessibility of its haunts that good specimens are not common in collections. Larva October to April.

P. agavus *Drury* (1 b). The red anal spot of the hindwing very large, Z-shaped. The abbreviated *agavus.* white band of the hindwing is somewhat variable. Although the species is quite common even in gardens in the neighbourhood of Rio, especially in damp, shady places, we are still ignorant of its early stages. The insect frequents flowers, and is easy to catch. — Minas Geraës southwards to Rio Grande do Sul, westwards to Paraguay and the adjoining parts of Argentina; not extending to the foot of the Andes.

P. proneus *Hbn.* (= phryneus *Luc.*) (1 b). Both wings with narrow white band, the red sub- *proneus.* marginal spots of the hindwing straight or slightly curved; anal spot not V-shaped. — Minas Geraës to Parana; near Rio only in the Organ Mountains.

P. chamissonia. Both wings with white band, that on the hindwing abbreviated; cell-spot of the hindwing not extending further towards the base than to the 2. median; red anal spot V-shaped. — The larva is brownish black, with an oblique white band, extending laterally from the 6. segment to the tubercle on the 7. The pupal stage lasts three weeks. The butterfly is very common and is one of the earliest spring species (August). From August to April there are at least three generations. — **diodorus** *Hopff.* *diodorus.* (= campeiro *Foett.*) (1 b) has entirely white fringes. The breadth of the white band is variable. Minas Geraës; in the interior from São Paulo; Goyaz; Bahia. — The form **chamissonia** (= ascalus *Godt.*, *chamissonia.* echedorus *Boisd.*, eurydorus *Luc.*), described by Eschscholtz, occurs near Petropolis, in São Paulo, Parana and S. Catharina. Near Rio itself the species is absent. In this form the fringes are partly black, at least at the extremities of the veins. The specimens with a broad white band on the hindwing may be designated as ab. **bunichus** *Hbn.*; these are especially common in São Paulo and in the Organ Mountains. *bunichus.*

P. perrhebus. Wings entirely without bands. The larva lives on Aristolochia ciliata, and bears on all its segments tubercles which are partly white and partly yellow; an oblique band on the 6. and 7. segment is yellow. We know two geographical forms of this species. — In Brazil, from São Paulo to Rio Grande do Sul, in Paraguay, and in the neighbouring parts of Argentina, occurs a dark form, in which the head, the palpi, and the submarginal spots on the upper surface of the hindwing are distinctly red; this is **perrhebus** *Boisd.* (1 a). — The form from Buenos Aires, the province of Entre Rios, and *perrhebus.* Uruguay, is **damocrates** *Guen.* It is much paler; the head and palpi are black, and the submarginal spots *damocrates.* on the upper surface of the hindwing are not bright red. The species is especially common near rivers.

P. phalaecus *Hew.* (1 b). The only Aristolochia-Papilio with a spatulate tail which has hitherto been *phalaecus.* found in tropical America between Costa Rica and Paraguay. The body is very hairy. The white band, which traverses both wings, is intersected by black veins. — Eastern Ecuador.

P. photinus *Doubl.* (1 d). Upper surface with blue gloss, especially in the ♂. Wings without bands; *photinus.* hindwing with two rows of red spots. — Mexico to Costa Rica; a common species.

P. alopius *Godm. & Salv.* Spots on the hindwing smaller than in *P. photinus*, at least partly white, *alopius.* those of the inner row very small, partially wanting. — West Mexico; Nicaragua.

P. dares *Hew.* (1 d). Only one ♀ known, which is in the British Museum (coll. Hewitson). Tail *dares.* short; forewing with a small white spot on the disk; hindwing with two rows of red spots, which are larger than in *photinus*. — Nicaragua.

P. montezuma *Westw.* (1 a). Forewing without band. Hindwing with a row of red submarginal *montezuma.* spots. — Mexico to Nicaragua; one of the commonest species.

Aeneas-Group.

The following forms, which have white marginal spots, we unite as the *aeneas*-group. The species are partly hard to differentiate, especially as the two sexes are often very unlike. Very little is known about the earlier stages. Many of the species inhabit marshy woods, where the larvae live on Aristolochia. In consequence of the inaccessibility of these forests, quite a number of forms are still very rare in collections, and there are certainly still some species which have hitherto escaped the net. Scent-organ of the ♂ mostly with white wool, more rarely with black scales.

P. hahneli *Stgr.* (1 c). One of the most remarkable of the American *Papilios*, and doubtless the *hahneli.* best discovery of the successful collector after whom the species is named. Tailed. Forewing with three yellow-grey bands or patches; hindwing with area of the same colour, occupying the greater part of the wing. — Massauary, near Maués, Amazon River. Collecting in the neighbourhood of the Amazon, from Pará to the foot of the Andes, seems to be more difficult nowadays than formerly. It is true the steamboat takes the collector from place to place, but in the neighbourhood of the larger settlements there is no longer much for him to seek, and living has become extraordinarily expensive. And it is difficult to find a place near the forest fit to live in and secure against flagrant robbery, and the collector is very dependent upon chance in this respect. — *P. hahneli* has not been again discovered; but so many Amazon species are represented in collections by only a few specimens that it must be assumed that the real haunts of this insect are not yet known.

triopas. *mithras.*

P. triopas. Forewing with two bands. Hindwing small, recalling the Old World *Troides* (= Ornithoptera). The form from the Lower Amazon and Dutch and French Guiana is the commoner in collections; this is **triopas** *Godt.* (1 c). — The form from British Guiana, which is called **mithras** *Grose-Smith,* has smaller and paler spots. — A woodland species like its allies. The ♀ flies slowly near the ground, whilst the ♂ has a swifter flight and generally remains at a considerable height.

chabrias.

P. chabrias *Hew.* (1 c). The forewing in both sexes has a row of submarginal spots, which however are often wanting in the ♀. The central area of the hindwing is situated somewhat further towards the margin than in *P. triopas*, consequently the cell-spot is smaller. — Upper Amazon, from Ega to Ecuador and Peru. Neither this nor the preceding species has so far been found in the large district between Obidos and Ega.

coelus.

P. coelus *Boisd.* (♂ = vercingetorix *Oberth.*) (1 d). Forewing with a white spot, obsolete at the margins, which fills up the extremity of the cell, and extends on to the disc. Hindwing with red band on the disc, in the ♂ composed of four spots, in the ♀ of six. — French Guiana, the ♂ in Oberthür's Collection, one ♀ in the Paris Museum.

quadratus. *spoliatus.*

P. quadratus. Forewing long; hindwing in both sexes with a band consisting of yellowish white spots on the disc close to the cell, and on the under surface in addition with a red spot at the hind angle. — In the name-typical form **quadratus** *Stgr.* (2 b), of which only one ♂ is known, the forewing has a yellowish white spot before the 2. median. The specimen was taken near Manicoré on the Rio Madeira. — In **spoliatus** *Stgr.* neither sex has a spot on the forewing. Upper Amazon; rather rare, near Iquitos, Pebas, S. Paulo de Olivença and other places.

pizarro.

P. pizarro *Stgr.* Abdomen in the ♂ quite black, in the ♀ with a red spot before the apex on the underside. Forewing without spots, also none in the fringes. Hindwing with whitish yellow area, which in the ♂ consists of three or four spots, in the ♀ of three to six. — Upper Amazon.

steinbachi.

P. steinbachi *Rothsch.* (2 a). This fine species has recently been discovered by J. Steinbachi in the eastern part of Bolivia. Forewing in both sexes with a large white spot before hindmargin; hindwing with a red band. Santa Cruz de la Sierra, between the end of February and June; also received from Mapiri.

klagesi.

P. klagesi *Ehrm.* (2 a). The ♂ of this peculiar little *Papilio* is not known; only four ♀♀ have been found. The hinder angle of the cell on the forewing is quite rounded; neither the fore- nor the hindwing has distinct fringe-spots. Forewing with a white band before the hindmargin; hindwing with a band composed of red spots. Abdomen entirely black, even at the tip. — Suapure, on the Caura, Orinoco, taken by S. M. Klages and his brother in February and March, 1899. Perhaps the species belongs to the *lysander*-group.

aeneas. *specularis.* *dido.* *marcius.* *linus.* *damis.* *pyromelas.* *eucharia.* *locris.*

P. aeneas. Palpi black, as in the preceding species. Abdomen in the ♀ with a small red spot beneath before the tip. Sexes very different. ♂ with green spot on the forewing; hindwing with red non-opalescent central area, not extending further towards the base than to the middle of the cell. In the ♀ the forewing is either entirely black, or bears one or more white obsolete spots on the margins. Guiana; Upper Orinoco; Amazon from Pará upwards; eastern slopes of the Andes of Peru and Bolivia. Several geographical forms. A woodland species, about whose earlier stages nothing is known. — **aeneas** *L.* (= gargasus *Hbn.*; aeneides *Esp.*; bochus *Luc.*) (2 b) inhabits the three Guianas. The green spot of the ♂ is removed from the cell, and is usually wider before than behind the submedian vein. The ♀ occurs in two forms: ♀-f. **specularis** *R. & J.* has on the forewing a large white spot before the 1. median, and usually several smaller ones, of which one is in the cell. In the second form, ♀-f. **dido** *R. & J.*, the forewing has no white spots. — **marcius** *Hbn.* (2 b) is the subspecies from the Lower Amazon. The ♂ is similar to that of *aeneas*, but the last red spot but one on the under surface is larger. We know only one form of the ♀; in this the white spot of the forewing usually extends to the 2. median, and the median red spots of the hindwing are close together. — **linus** *R. & J.* from the Middle Amazon (Santarem, Obidos, Massauary) was unknown to Bates. The red spots on the underside of the hindwing of the ♂ are paler than in the last subspecies, and stand closer together and nearer to the cell. In the ♀ the red spots are united into an uninterrupted band. — **damis** *R. & J.* inhabits East Peru. The green spot of the ♂ is larger than in the preceding forms, and the spots on the under surface of the hindwing are reddish white. The ♀ occurs in two forms: ♀-f. **pyromelas** *R. & J.* (2 b) has entirely black forewing; the red spots of the hindwing are confluent, forming a band. In ♀-f. **eucharia** *R. & J.* the forewing has a large white area with undefined margins. — **locris** *R. & J.* is in the ♂ similar to the last subspecies, but the red spots on the hindwing are larger. The ♀ has always a white area on the forewing; the red spots on the hindwing are separated from one another, the spot before the 1. median being the largest. Bolivia. — **bolivar** *Hew.* (2 a) inhabits *bolivar.* the Upper Amazon and the Orinoco. The red area on the hindwing of the ♂ is small, and is whitish yellow on the under surface. Forewing of the ♀ black, with white spots on the fringes; hindwing with a whitish yellow area.

P. dardanus *Fabr.* (= tros *Fabr.*; opleus *Godt.*) (2 c). Tailed. Forewing in the ♂ with a green *dardanus.* spot before the hindmargin; the red area of the hindwing not opalescent. ♀ with a white area on the forewing, with obsolete margins. — An exclusively Brazilian species, which hitherto is only known from the province of Rio de Janeiro.

P. orellana *Hew.* (2 c). The most beautiful species of the *aeneas*-group. Forewing in both sexes *orellana.* black, bluish in a side-view, with white spots on the fringes. Hindwing in the ♂ with a very large red area, not opalescent; in the ♀ with a broad red band. — Upper Amazon, from Ega to Iquitos.

P. sesostris. Forewing in the ♂ with very large green area which touches the cell; hindwing either black or with a red spot before the hindmargin. Forewing of the ♀ with at least two white spots; the red band on the hindwing generally broad. Scent-organ of the ♂ with white wool, except at the base, which is black. Mexico to the Amazon, in three subspecies. — The northern form is **zestos** *Gray* (3 a). The ♂ *zestos.* has always a red spot on the hindwing. In the ♀ the band on the upper surface of the hindwing is bright red. South Mexico to Costa Rica. — **tarquinius** *Boisd.* occurs from Panama to Ecuador and North Venezuela. *tarquinius.* The upper surface of the hindwing of the ♂ has mostly a red spot as in *zestos,* but the band on the under surface is more obliquely placed. In the ♀ the second white spot on the forewing is somewhat larger than in *zestos,* and the band on the under surface of the hindwing is nearer to the cell. — **sesostris** *Cr.* *sesostris.* (♀ = tullus *Cr.*) (2 d) has very rarely a red spot on the upper surface of the hindwing of the ♂, and the spots on the under surface are placed somewhat nearer to the margin. In the ♀ the two white spots on the forewing are widely separated from the cell. Orinoco; Guiana; Pará to Peru; Bolivia; Goyaz.

This species is a strong flier, which appears never to leave the woods.

P. childrenae. The green area of the ♂ is larger than in *P. sesostris,* covering also a part of the cell. The ♀ has a transverse row of spots before the apex of the forewing, as well as two spots on the disc posteriorly. Distributed from Guatemala to Ecuador in two subspecies. — **childrenae** *Gray* (3 a) is the *childrenae.* Central American form, which is found from Guatemala to Panama. Forewing of the ♂ with a white spot before the apex. Band on the hindwing of the ♀ bright red. — **oedippus** *Luc.* has in the ♂ no white spot *oedippus.* before the apex of the forewing, or only a very small one. In the ♀ the band on the hindwing is a somewhat yellowish red on the inner side. Colombia and Ecuador.

P. erlaces. Palpi always black. Fringes of both wings spotted with white. Forewing of the ♂ with a gray-green spot before the hindmargin; hindwing with three red, strongly opalescent spots. In the ♀ the margin of the 8. abdominal segment red all round; forewing with large cell-spot and 2 or 3 discal spots. Ecuador to Bolivia. — **lacydes** *Hew.* (♀ = equestris *Oberth.*) (3 b) has rarely a white spot on the *lacydes.* forewing of the ♂, the spots on the under surface of the hindwing small, almost entirely white. In the ♀ the cell-spot of the forewing large; band of the hindwing white. In Eastern Ecuador. — **xanthias** *R. & J.* *xanthias.* (3 b). Forewing of the ♂ almost always with one or two white spots; spots on the under surface of the hindwing varying from white to red. Cell-spot of the ♀ triangular, second discal spot larger than the first; band on the hindwing pale yellow. North-east Peru, southwards to Huánuco. — **erlaces** *Gray* (3 a) is the *erlaces.* most southerly form. It inhabits South-east Peru, Bolivia and North Argentina. Forewing of the ♂ rarely without large white spots; hindwing on the underside with 5—7 red spots. Forewing of the ♀ usually with 3 white spots besides the cell-spot; band on the hindwing red.

P. burchellanus *Westw.* (= socama *Schaus*). Sexes similar. Palpi black. Forewing black, only with *burchellanus.* fringe-spots. Hindwing with a row of separated red discal spots. Resembles *P. panthonus Cr.* (3 b), which however has red marginal spots. — In the interior of Brazil: Farinhapodre, Goyaz; rare in collections. On pl. 3 a specimen of *panthonus* is figured by oversight as *burchellanus.*

P. drucei *Btlr.* (♀ = opalinus *Btlr.*) (3 b). Palpi generally black, sometimes red. Forewing in the ♂ *drucei.* with a green spot, separated from the cell; in the ♀ unicolorous, but the fringes spotted. Hindwing in the ♂ with 3, occasionally 4, opalescent spots; in the ♀ with a band composed of 5—7 spots, sometimes rather strongly opalescent. Eighth abdominal segment of the ♀ edged with red all round. — Upper and Middle Amazon, and the eastern slopes of the Andes from Ecuador to Bolivia.

P. cutorina *Stgr.* (♀ = mazeppa *Grose-Smith*) (3 c). Palpi red. Forewing of the ♂ with a green *cutorina.* spot; in the ♀ without spot, the fringes spotted with white. Hindwing in the ♂ with two contiguous red spots on the upper surface, the spots on the under surface yellowish white; in the ♀ the wing has a yellowish white band on both surfaces; 2. and 3. radials close together, the transverse vein between them not oblique. — Upper Amazon and slopes of the Andes of Ecuador and Peru.

P. phosphorus. Palpi red. Forewing somewhat transparent distally; ♂ with dirty-green spot; hindwing rather strongly dentate, the red spots remote from the cell. Tibiae armed with spines, not thickened.

♀ with grey-green area on the forewing before the hindmargin, which occurs in no other ♀ of the Aristolochia-Papilios. Colombia; Guiana; Lower Amazon; East Peru; perhaps more widely distributed. A rare insect; probably a swamp species which escapes observation. Two subspecies: — *phosphorus.* **phosphorus** *Bates* (3 c) occurs in British Guiana and at the Lower Amazon. The green spot on the forewing of the ♂ is narrow and separated from the cell. The forewing of the ♀ has a row of 4 white spots on the grey-green area (always?). — *gratianus.* **gratianus** *Hew.* (3 c) inhabits Colombia and East Peru. The green spot on the forewing of the ♂ is much broader than in the preceding form; hindwing with only 3, or rarely 4, red spots, the series not curved. Forewing of the ♀ with two white spots; the posterior spots of the hindwing large.

P. vertumnus. Palpi red. Forewing in the ♂ with a green spot; in the ♀ unicolorous or spotted with white. Hindwing of the ♂ with triangular red area, which consists of 3 or 4 spots, of which the posterior one is usually the longest; in the ♀ with a broad red band, consisting of 5—7 spots, of which the four posterior ones are more or less completely connected. One of the commonest species, which is often met with in the woods, settling in damp places at the edge of the brooks. Distributed from Colombia to Bolivia, Guiana and Pará, but not yet found in Venezuela and Brazil proper.*) — *yuracares.* **yuracares** *R. & J.* is the Bolivian subspecies. Only the ♂ is known. The green spot touches the cell, and encloses at least one white spot. Hindwing with at least 4 red spots, of which the anterior two are separated; 5 small spots on the under surface. Found by J. Steinbach from January to April. — *autumnus.* **autumnus** *Stgr.* (3 d). ♂: the green spot larger than in the preceding; hindwing with 3 red spots; 4 small red spots on the under surface. ♀: forewing with very large yellowish area; cell-spot especially large. East Peru: Chanchamayo; undoubtedly extending further south. — *bogotanus.* **bogotanus** *Fldr.* Only the ♂ known to us. Forewing without white spot; hindwing with rather large red area, the spots on the under surface small. Rio Palcazu northwards to "Bogotá". — *diceros.* **diceros** *Gray* (= cixius *Gray*; ♂ = cutora *Gray*). ♂: forewing usually without white spots in the green area; when present they are transverse, and somewhat obliquely placed; red area of the hindwing smaller than in the preceding forms, the spots on the under surface on the contrary generally larger. ♀: forewing with chalky-white area, consisting of 2—4 spots, occasionally only one double spot present. Pará to Iquitos. — *vertumnus.* **vertumnus** *Cr.* (3 c) is distinguished in the ♂ from all the other forms of the species by the short-haired middle and hind tibiae. The ♀ as in the Amazon form, or the forewing with only one white spot, of which there is sometimes merely an indication. Guiana.

P. lycimenes. ♂: somewhat smaller than *P. vertumnus,* the red area of the hindwing less triangular and its last spot smaller. ♀: forewing slightly transparent at the apex; the spots somewhat yellowish, not pure white, the cell-spot usually large and extended across the cell; band of the hindwing less bright red than in *P. vertumnus.* Tibiae of the ♂ not thickened. Guatemala to Ecuador, in several subspecies. — *lycimenes.* **lycimenes** *Boisd.* is the Central American form. Forewing with a large green spot, which almost always encloses at least one white spot; often a spot in the cell; hindwing with 4—6 red spots. In the ♀ the yellowish white spot before the 1. median much larger than the preceding one; band of the hindwing broad, almost always a uniform bright red. Guatemala to Panama; also on the small islands on the west coast of the Republic of Panama. — *erythrus.* **erythrus** *R. & J.* (3 d). ♂: the green spot broader than in the preceding form, reaching to the hindmargin of the wing. ♀: the spot before the 1. median of the forewing larger than in the preceding form; the band of the hindwing paler. Central and East Colombia and North Venezuela. — *paralius.* **paralius** *R. & J.* (4 a). Small. ♂: forewing with round yellow-white spot before the 2. median; band of the hindwing short and narrow. ♀: spot on the forewing purer white than in the previous subspecies, the cell-spot reduced; the spot before the 2. median the largest; band of the hindwing almost straight. West Ecuador.

P. erithalion. ♂: tibiae not thickened. Hindwing without distinct red spot behind the 2. median on the upper surface. ♀: the spot before the 1. median of the forewing smaller than the preceding spot; band on the hindwing broad, pale on the innerside. Costa Rica to North Venezuela. — *zeuxis.* **zeuxis** *Luc.* (= rhameses *Doubl.,* rhesus *Koll.,* rhamases *Fldr.,* abilius *Fldr.,* rhamses *Boisd.*) (4 a). ♂: the green area much narrowed anteriorly, enclosing a large white spot before the 2. median; hindwing with 2 or 3 small red spots. ♀: the posterior spot of the forewing larger than the preceding one. North Venezuela and eastern side of the Cordillera of Bogotá. — *erithalion.* **erithalion** *Boisd.* (4 a) from Central Colombia (Rio Magdalena) has in the ♂ rarely a white spot on the forewing, which is placed before the 1. median or between the radials. ♀: the spot before the 1. median smaller than the preceding one; generally a few small spots outside the cell. — *cauca.* **cauca** *Oberth.* ♂: the green area of the forewing wanting or merely indicated. ♀: band on the hindwing narrow, curved, separated from the cell. Cauca valley. — *sadyattes.* **sadyattes** *Druce* (4 a). ♂: the green area very variable, generally reduced, often wanting; all specimens with at least one white spot, which is placed before or behind the 3. radial, often a green spot in the cell. ♀: band of the hindwing almost unicolorous bright red. Costa Rica to Panama.

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*) Faunistically we understand by Brazil the eastern part of the continent from the province of Goyaz and Pernambuco to Rio Grande do Sul. In this district we find a fauna which is quite different in many respects from that of the rest of South America.

P. polyzelus. ♂♀: forewing without green area, rarely with a small white spot in the ♂; band of the hindwing narrow, nearer to the margin than to the cell. Mexico to Honduras; common. — *polyzelus.* In **polyzelus** *Fldr.* (= candezei *Borre*) (4a), from East and South Mexico, Guatemala and Honduras, the tibiae of the ♂ are not thickened, resembling those of the ♀. — *trichopus.* In **trichopus** *R. & J.*, from West Mexico, the tibiae of the ♂ are thickened and bear fine hairs, as well as the 1. segment of the tarsi; the band of the hindwing is on the whole broader than in the preceding.

P. iphidamas. ♂: tibiae and 1. segment of the tarsi thickened and covered with fine hairs. ♀: forewing at the margin less deep black than in *P. erithalion.* Mexico to Ecuador and North Venezuela. A common species, which is not easy to distinguish from *P. erithalion* and *P. lycimenes*, and is consequently often mistaken for them. — *iphidamas.* **iphidamas** *F.* (= panares *Gray*, achelous *Hopff.*, incandescens *Btlr.*) is the Central American form. ♂: forewing distally not transparent; the green area usually reduced, always enclosing one or two white spots; often a white spot in the cell; band of the hindwing gradually widened posteriorly, a narrow spot behind the 2. median. ♀: cell-spot on the forewing large, usually some small spots beyond the cell; the spot before the 2. median smaller than the preceding one, or obliquely cut off towards the base; band of the hindwing almost unicolorous bright red, its inner margin evenly curved. South Mexico to Panama. — *phalias.* **phalias** *R. & J.* (4b). ♂: the green area widest posteriorly, reaching to the hindmargin; hindwing with three red spots separate from the cell. ♀: forewing slightly transparent at the apex; cell-spot very large; the spot before the 1. median much larger than the preceding one; band of the hindwing very broad, pale on the inner side. Colombia: Magdalena Valley and Cordillera of Bogotá. — *elatos.* **elatos** *R. & J.* ♂: the green area smaller than in the preceding subspecies; hindwing with three small red spots. Cauca Valley. — *calogyna.* **calogyna** *R. & J.* (4b). ♂: forewing exteriorly somewhat more thickly scaled than in *phalias* and *elatos*, usually a white spot before the 2. median; hindwing with 3 small red spots, close together. ♀: the spot before the 1. median of the forewing larger than the preceding one; band of the hindwing bright red, its inner margin usually white. West Ecuador and west coast of Colombia. — *teneates.* **teneates** *R. & J.* ♂: the green area narrow, separated from the cell, usually enclosing one or two white spots. ♀ not known with certainty. North Venezuela and North Colombia.

P. anchises. Apex of the forewing distinctly, though only slightly, transparent. ♂: tibiae and 1. segment of the tarsi thickened and covered with fine hairs; hindwing blue, strongly iridescent. ♀: the spot before the 1. median larger than the preceding spot. Colombia to South Brazil and Paraguay. The black-brown larva has on the first and on the penultimate segment two dorsal spots, and on each of the thoracic segments and the 8. and 9. abdominals one lateral spot; on the 6. and 7. segments is an oblique lateral band, sometimes broken up into spots. The dorsal humps on the pupa are three-edged and rather small. — *alyattes.* **alyattes** *Fldr.* (4b, c). ♂: the green area separate from the cell, enclosing at least one white spot, placed before the 2. median, many specimens with a second spot before the 1. median; the last spot on the inner surface of the hindwing larger than in *P. iphidamas phalias.* ♀: cell-spot narrow; band of the hindwing entering the end of the cell, black outer margin wider than in *iphidamas.* Colombia, in the Magdalena Valley and probably on both sides of the Cordillera of Bogotá. — *serapis.* **serapis** *Boisd.* ♂: the green area very long and narrow, only a little wider posteriorly than anteriorly; band of the hindwing consisting of at least five spots. ♀: cell-spot large, almost triangular, the spot before the 1. median very large and the band on the hindwing very broad. North Colombia. The distribution of *serapis* and *alyattes* is only very imperfectly known. — *osyris.* **osyris** *Fldr.* (= xenares *Fldr.*, toxaris *Fldr.*, severus *Fldr.*) (4b). ♂: the green area of the forewing and the band of the hindwing broader than in *serapis.* ♀: the cell-spot usually extending transversely across the cell; the band of the hindwing very little paler internally than externally. Venezuela. — *cymochles.* **cymochles** *Doubl.* (= anacharsis *Fldr.*). ♂: forewing with one to three spots; hindwing with three, occasionally four, red spots. ♀: spots of the forewing purer white than in the preceding subspecies; cell-spot small; band of the hindwing almost unicolorous red, broadest in the middle. Trinidad, Paria Peninsula and Orinoco. — *anchises.* **anchises** *L.* (= telmosis *Bates*, toxaris *Fldr.*) (4c). ♂: green area narrow, sometimes wanting; hindwing more strongly dentate than in the other forms, the red spots usually widely separated. ♀: forewing without cell-spot or with merely a cell-streak, often without any spots; hindwing with a row of six or seven red spots, separated from one another. Dutch and French Guiana. — *thelios.* **thelios** *Gray* (= hierocles *Gray*, aglaope *Gray* [partim]) (5a). ♂: the green area triangular, enclosing one or two rather large white spots; hindwing with three or four red spots, of which the one before the 2. median is the largest. ♀: forewing with at least two white spots, the one before the 2. median the largest; hindwing with seven or eight separated spots. Lower Amazon, from Pará to Santarem; occurs in dry, sandy places in the forest, not in the swamps. — *etias.* **etias** *R. & J.* ♂: palpi sometimes almost without red scales; hindwing without a red spot before the 1. radial, or this spot very small. ♀: spots on the forewing pure white, cell-spot very small, two large white spots before and behind the 1. median. East Bolivia, found by J. Steinbach in December, January and April-May. — *orbignyanus.* **orbignyanus** *Luc.* (4c). The red band on the hindwing of the ♂ is uniformly curved and becomes gradually narrower anteriorly; the forewing has at least one large white spot. In the ♀ a spot in the cell of the forewing and at least two on the disc; hindwing with a band from the subcostal to the hindmargin. Paraguay; northern part of Entre Rios; Matto Grosso; Goyaz. — *foetterlei.* **foetterlei** *R. & J.* (4c). White spots on the forewing of both sexes very large and the band on the hindwing very broad. In the interior of the province of São Paulo.

hedae. **P. hedae** *Foett.* (5a). Only one ♀ known; palpi red; on the forewing a very broad white band, with the edges diffuse; hindwing for the most part pale red, whitish towards the base, the marginal spots slightly yellowish. Icarahy, near Rio de Janeiro.

nephalion. **P. nephalion** *Godt.* (= osymanduas *Hbn.*, proteus *Boisd.*, stilbon *Koll.*, haemon *Fldr*) (4d, 2d). Marginal tooth at the 3. radial of the hindwing projecting more than in *P. anchises L.* Forewing in both sexes with two or three large white spots. Hindwing of the ♂ with three red spots on the upper surface, and usually a fourth separated from them; in the ♀ with a band composed of five spots, and commonly a sixth or even a seventh (very small) spot. The larva is brown-black, with a yellow longitudinal stripe on the sides. The butterfly is not rare, and occurs in Brazil proper southwards to Rio Grande do Sul, as well as in Matto Grosso, Paraguay and the adjoining parts of Argentina. A forest-species.

Lysander-Group.

The following species, which form the *lysander*-group, have red instead of white marginal spots. The hind tibiae of the ♂ are always dilated and with fine hairs. The species occur together with those of the *aeneas*-group, and are sometimes very common. The red spots on the hindwing have no opalescent gloss.

P. panthonus. Forewing in both sexes black, with reddish marginal spots; hindwing with a regularly curved row of separated red spots. Scent-wool white. Guiana and Brazil, in two subspecies. — *numa.* **numa** *Boisd.* (= jaguarae *Foett.*), from Brazil (São Paulo and Minas Geraës), has small, widely separated *panthonus.* spots. — In **panthonus** *Cr.* (3b, 5a), from the three Guianas, the spots on the hindwing are somewhat larger. This form most probably occurs also on the north side of the Lower Amazon.

aglaope. **P. aglaope** *Gray.* ♂: forewing with a blue-green band, which has at least one large white spot, placed before the 2. median; hindwing with four spots, separate from the cell. The ♀ occurs in two forms: *lysimachus.* ♀-f. **lysimachus** *Honr.* has on the forewing a straight row of three spots; ♀-f. **callicles** *Bates* has on the *callicles.* forewing a large spot behind the 1. median, a smaller one before it, and a streak in the cell. — This species is rather rare; it has hitherto only been taken on the Lower Amazon, in South-east Peru and in *euristeus.* eastern Bolivia. — Cramer has figured as **euristeus** a butterfly from Surinam which perhaps also belongs here, but the figure is too bad to be referred with certainty to any one species. Is it the ♂ of *klagesi Ehrm.?*

lysander. **P. lysander** *Cr.* (= phrynichus *Fldr.*). ♂ with white scent-wool in the fold of the hindwing. Outer margin of the forewing in the ♀ rounded; the last two red spots on the hindwing separated, standing *parsodes.* obliquely one under the other; ♀-f. **parsodes** *Gray* (= sonoria *Gray*) has a large white area on the *arbates.* forewing, composed of several spots; in the ♀-f. **arbates** *Stoll* (= anaximenes *Fldr.*) the forewing has only *brissonius.* one white spot; whilst in the ♀-f. **brissonius** *Gray* (5b) the forewing has no white spot at all. A ♂ with *bari.* yellow instead of red spots on the forewing has been described as ab. **bari** *Oberth.* — This species is known from the whole of the Amazon, East Peru and East Ecuador, as well as from the Guianas and Bogotá; it has not hitherto been found in Bolivia nor in Brazil proper.

P. echemon resembles the preceding species; but the forewing is narrower, the outer margin being incurved in the ♂, straight in the ♀, the cell of the forewing is narrower at its extremity, the 3. radial of the hindwing is usually much nearer to the 2. radial than to the 1. median, and the fold of the hindwing in the ♂ has no white wool. On the Lower and Middle Amazon and in the Guianas. Two subspecies. — *echemon.* Hübner's figures agree with the form from the Amazon: in the ♂ **echemon** *Hbn.* (= echelus *Hbn.*) the blue-green band of the forewing is narrow and placed, like the white band of the ♀, separate from the cell. *ergeteles.* From Pará to Santarem. — **ergeteles** *Gray* (= echephron *Bates*, echion *Bates*, polyphron *Fldr.*) has in the ♂ a broader blue-green band, and in the ♀ the white spot before the 2. median is contiguous to the cell, or the forewing is without spots. ♀-f. **ergeteles** *Gray* is the form of the ♀ with a white area; in the ♀-f. *pisander.* **pisander** *Fldr.* the white spots are only indicated by a few white scales. From Obidos to the Rio Negro, north side of the Amazon; Guiana. — Whilst *P. lysander* is a swamp species and flies heavily over the wettest places in the shade of the woods, *P. echemon* prefers drier localities in the woods, and is often found on the flowers which hang down from the trees over the narrow paths in the forests.

P. neophilus. In the ♂ the cell of the hindwing on the upper surface is red nearly to the base. In both sexes the 2. median of the hindwing arises at the same height as the subcostal. Colombia to Paraguay and South Brazil, but not from Rio de Janeiro to Pernambuco, where *P. zacynthus* occurs. — *eurybates.* **eurybates** *Gray* (= euphales *Gray*) (5c). ♂ with large white spots on the forewing; the red spots on the hindwing not blackish towards the base, with the exception of the first and last, the middle ones touching the cell on the under surface. ♀ with 2 white spots between the 3. radial and 2. median, rarely with the spots merely indicated, the red band on the hindwing broad. São Paulo and Matto Grosso; Paraguay (transition to the next form). — *consus.* **consus** *R. & J.* ♂: the green area between the 2. median longer than broad, the white spot before the 2. median rounded, usually smaller than the preceding spot; on the hindwing the cell-spot and the part of the discal spot next to the cell are blackish red; the spots on the underside smaller than in *eurybates.* In the ♀ the white spots are large; the band on the hindwing is usually separate from the cell. East Bolivia. — *olivencius.* **olivencius** *Bates* (5 c). White spots on the forewing in both sexes small or indistinct; the red spots on the hindwing in the ♂ long on the upper surface, short on the under. In the ♀-ab. *anaximenes.* **anaximenes** *Fldr.* the spots of the hindwing are very long. East Peru to the Cordillera of Bogotá, and on the Amazon downwards to the Rio Negro. — *ecbolius.* **ecbolius** *R. & J.* ♂: the green spot behind the 2. median of the forewing about as long as broad, the white spot before this vein distinct and transverse as the preceding spot; the red spots on the hindwing shorter than in *olivencius.* In the ♀ the forewing has a large white spot before the 2. median and another before the 1. median, the outer margin of these spots almost parallel with the outer margin of the wing. Lower Amazon, upwards to Obidos. — *neophilus.* **neophilus** *Hbn.* (= gargasus *Hbn.* [partim], aeneides *Esp.* [partim]), the first described form, inhabits the Guianas. ♂: the green area is broader and the red spots on the underside of the hindwing smaller than in the ♂ of *ecbolius.* In the ♀ there are no white spots on the forewing, or they are small, rarely are they large; the third spot on the hindwing longer than the others, the spots on the upper surface further from the margin than in *olivencius.* — *parianus.* **parianus** *R. & J.* from Trinidad, Cumana and the Orinoco. The green area of the ♂ behind the 2. median longer than it is broad, enclosing three white spots; the spots on the under surface of the hindwing paler than in the Bolivian form, to which *parianus* comes near, the spot before the 2. median placed close to the cell. In the ♀ the band of the hindwing is somewhat more curved than in the other subspecies; the narrow middle spots are placed close to the cell on both surfaces.

P. zacynthus. Band on the forewing in the ♂ greenish blue. The spots on the under surface of the hindwing of the ♀ paler than in *P. neophilus.* Brazil, from Rio de Janeiro northwards, in two geographical forms. Not rare in damp localities overgrown with bushes. The larva is grey-brown, with a yellow lateral stripe. — The form from the province of Rio de Janeiro, *zacynthus.* **zacynthus** *F.* (5 b), occurs in the neighbourhood of the town of Rio, but is much rarer than *P. nephalion.* The forewing is not transparent at the apex: the ♀ has a spot in the cell of the forewing. — The northern form, from Pernambuco, Bahia and Rio Tapajos, is *polymetus.* **polymetus** *Godt.* (5 b). The forewing is transparent at the apex and the ♀ has no spot in the cell, or only a very small one.

P. arcas. In the ♂ the cell of the hindwing above is red from about the middle; in the ♀ the forewing has a large white spot placed obliquely across the cell. Mexico to the Guianas and Colombia, not found further south. — *mylotes.* **mylotes** *Bates* (= docimus *Gray*, caleli *Reak.*, tonila *Reak.*, alcamedes *Fldr.*, aristomenes *Fldr.*) (5 d). ♂: the green spot before the 1. median long and usually enclosing a white spot; the cell mostly also with a white or green spot, no green streak at the hindmargin. The band on the hindwing in the ♀ separate from the cell and bright red on both surfaces. Mexico to Costa Rica; very common in the lowlands. — *mycale.* **mycale** *Godm. & Salv.*, from Panama and the small islands on the Pacific coast of that Republic, forms a transition from the preceding to the following form. In the ♂ the green area before the 2. median is always large; the cell-spot on the hindwing and the adjoining parts of the discal spot are tinged with brown. The band on the hindwing of the ♀ is bright red and usually placed close to the cell. — *arriphus.* **arriphus** *Boisd.* The forewing of the ♂ has almost always a green spot also before the 1. median; hindwing with a cell-spot on the upper surface, the band sometimes pale and narrow: ♂-ab. *agathokles.* **agathokles** *Koll.* In the ♀ the band on the hindwing is pale red and includes also the extremity of the cell. Colombia, from the Rio Magdalena and Rio Meta; common in "Bogotá" collections. — *antheas.* **antheas** *R. & J.* The green band of the ♂ reduced, no spot before the 1. median; the band of the hindwing usually very pale, in the ♀ likewise paler than in *arriphus* and mostly shorter. Cauca Valley. — *arcas.* **arcas** *Cr.* (♂ = eurimedes *Cr.*) from Venezuela and Guiana. The red band of the hindwing in both sexes is broader than in the other subspecies; in the ♂ the extremity of the cell of the hindwing is red also beneath, and in the ♀ the cell-spot is much larger than in *arriphus.*

P. timias. Both sexes with two large white spots on the forewing, in the ♂ placed in the green area; red cell-spot on the hindwing in the ♂ large; ♀ with a rather small cell-spot or none at all. West Ecuador, from Guayaquil upwards. Many northern species occur in this district which are wanting in East Ecuador and Peru. — Gray's *timias.* **timias** (5 d), whose ♀ was named *bimaculatus* by Hewitson, occurs about Guayaquil and in the neighbouring districts. The cell of the forewing in the ♂ has no distinct green spot; the first spot on the under surface of the hindwing is at least as large as the last. In the ♀ also there is no distinct cell-spot on the forewing and the discal spots are small. — *potone.* **potone** *R. & J.* has in both sexes a distinct cell-spot on the forewing. Paramba and Ambato, taken by Rosenberg at a height of 3500 ft.

Section B.

The following Aristolochia-Papilios are very different from the preceding groups. The body is never spotted with bright red, and the wings never have bright red spots or bands. The antennae have no deep sensory grooves and their terminal segment is very short. The cell of the hindwing is rounded at the apex and its lower angle is at least as large as the upper. The scent-organ on the hindwing of the ♂ is never woolly and the tibiae are never thickened. — The larva bears on the first thoracic segment strongly elongated fleshy protuberances, and the dorsal humps of the pupa are narrow, laterally compressed and rather long.

Polydamas-Group.

This *polydamas*-group also differs essentielly in habits from the red-spotted butterflies. They are inhabitants of the open country, seldom met with in the shade of the forest. The ♂♂, which are quick fliers, are fond of resting on damp sand or mud to imbibe the moisture, whilst the ♀♀ visit several common species of flowers.

orsua. philenor. acauda. wasmuthi. obsoleta.

P. philenor is a well-known North American butterfly, distinguished by the bright green or blue gloss of the outer part of the hindwing beneath. Its original home was undoubtedly the Southern Atlantic States, whence it has spread to Mexico and again in the west as far as Northern California. In the central part of the United States, from Colorado northwards, the species is absent; in the east, on the contrary, it extends as far as the south of Canada, where it is met with from time to time as an immigrant. Its distribution northwards, in places where the original food-plant (Aristolochia serpentaria) is not found, has been made possible by the cultivation of Aristolochia sipho as an ornamental plant. — **orsua** *Godm. & Salv.* is a small tailless form from the Tres Marias Islands with strongly glossy hindwing. — **philenor** *L.* (= astinous *Drury*) (6 a) inhabits the United States and Mexico. The species varies geographically but little, yet some of the Mexican specimens are tailless, which seems never to occur in North America. This ab. mex. **acauda** *Oberth.* (= nezahualcoyotl *Streck.*, corbis *Godm. & Salv.*) occurs together with ordinary specimens. As ab. **wasmuthi** *Weeks* a colour variety is described which recalls the celebrated ab. *calverleyi* of *P. polyxenes Fabr.* In this aberration the marginal spots are enlarged into a broad band. Specimens without submarginal spots on the upper surface are ab. **obsoleta** *Ehrm.* The species has several generations in the Southern States. The specimens of the spring brood are in general more rough-haired than those of the summer. The butterfly is very common, and flies in great numbers about flowering trees, or sips at the flowers of low plants or at wayside pools. In feeding and flying the wings have a quivering motion as in the allied species.

devilliers.

P. devilliers *Godt.* (6 a). Hitherto known with certainty only from Cuba; the older authors assigned it to Florida also, which is perhaps due to an error. Tailed. Forewing with a submarginal row of white spots; hindwing on the upper surface with a submarginal band, and on the under with one or more silver spots.

zetes.

P. zetes *Westw.* (6 a) has on the upper surface of both wings a yellowish band, and on the under surface of the hindwing a silver band. Haiti; only a few specimens in collections.

The following species are all without tails. To some extent the form of the wings recalls the so-called *Ornithoptera* from the Oriental Region.

streckerianus.

P. streckerianus *Honr.* (= mathani *Oberth.*) (6 a) is a native of the dry open country of North Peru. The spots on the body are greenish yellow. Forewing without band, the band on the hindwing very variable, opalescent in the ♀.

archidamas.

P. archidamas *Boisd.* (= bias *Kirby*, ex *Roger*) (6 b). The spots on the body reddish. Upper surface of both wings with a band composed of spots; under surface of the hindwing for the most part dirty white. Chile; all the year round in the open coast districts. The earlier stages are very similar to those of *P. polydamas.*

vincentius. lucianus. xenodamas. dominicus. neodamas. antiquus.

P. polydamas. The spots on the body reddish; upper surface of both wings with a band composed of spots; under surface of the hindwing black-brown, with red or yellowish red submarginal spots. Distributed from Virginia to Argentina; varying but little geographically on the continent, on the Greater and Lesser Antilles on the contrary developed into a different form on almost every island. One of the commonest *Papilios* on the continent; an inhabitant of cultivated ground which accompanies the settler everywhere; it is especially common where the ground cleared for cultivation has been again neglected. The larva varies from brown-yellow to dark black-brown; the tubercles are long, in dark specimens red. The pupa is strongly curved, and has three long, compressed humps on the abdomen; the thoracic horn is long. — **vincentius** *R. & J.* Above like the continental form; under surface of the hindwing with white costal streak; submarginal spots large. St. Vincent. — **lucianus** *R. & J.* The band on the upper surface broad; under surface of the hindwing with costal streak at the base; submarginal spots large. St. Lucia. — **xenodamas** *Hbn.* (= cebriones *Dalm.*, eurydamas *Kirby*, ex *Roger*). Band on the upper surface of the hindwing broad, placed close to the cell; under surface of the hindwing at the base with a large bluish grey spot and costal streak. Martinique; formerly erroneously given as inhabiting Brazil. — **dominicus** *R. & J.* The posterior spots on the upper surface of the forewing smaller than in *xenodamas;* band on the hindwing curved. Under surface of the hindwing with costal streak, but without the large spot below it. Dominica. — **neodamas** *Luc.* The upper spots of the band of the forewing wanting or small, the hinder spots further from the margin than in the preceding forms. Band on the hindwing almost straight. Guadeloupe. — **antiquus**

R. & J. Similar to the next form; the four anterior spots of the band of the forewing small: band on the hindwing narrower than in the next subspecies; submarginal spots on the under surface of the hindwing large, yellowish red. Antigua. — **thyamus** *R. & J.* Similar to *polydamas;* submarginal spots on the under *thyamus.* surface of the hindwing much more yellowish than in the continental subspecies. St. Thomas. — **lucayus** *lucayus.* *R. & J.* Under surface paler than in *P. polydamas;* the white transverse streak at the anal angle of the hindwing extending at least beyond the 2. median; the red submarginal spots as in the continental form, but larger. Bahamas. — **polydamas** *L.* (6b) is the continental form, which occurs from Georgia to *polydamas.* Argentina. It is also found on Cuba, but the Cuban specimens are usually distinguished by the deeper black marginal area on the under surface of the hindwing. The band on the upper surface varies much in breadth. The submarginal spots on the under surface of the hindwing are always narrow and red. — **polycrates** *Hopff.* (= hypodamas *Guen.*) differs from the preceding form on the upper surface principally *polycrates.* in the more distal position of the spot before the 2. median on the hindwing, and on the under surface in the large silver spots which stand at some of the red ones. The harpe of the ♂ has only one tooth instead of the two of all the preceding forms. Haiti and probably Porto Rico. — **jamaicensis** *R. & J.* is *jamaicensis.* very similar to *polycrates,* but the submarginal spots on the under surface of the hindwing are larger and the silver spots connected with them smaller. Jamaica.

P. philetas *Hew.* (6b). Abdomen of the ♂ yellowish white above. Under surface of the hindwing *philetas.* greenish yellow, with red submarginal spots. South Ecuador and North Peru.

P. madyes. Similar to the previous species; submarginal spots on the under surface of the hindwing yellow. The scent-scales different in the geographical forms, which is also the case in some of the other species of the *polydamas*-group. Peru and Bolivia. — **plinius** *Weym.* from North Peru. Forewing above *plinius.* with four small spots. Hindwing beneath ochre yellow (discoloured?); submarginal spots small. Only one specimen known; found by STÜBEL between Moyabamba and Chachapoyas. **chlorodamas** *Guen.* (= marsyas *chlorodamas.* *Stgr.*), the commonest form in collections. Bands of spots on the upper surface broad, on the forewing white (♂♂, ♀♀) or yellow (♂♂). In Huánuco and Junin, East Peru. — **crispus** *R. & J.* Spots on the *crispus.* upper surface much smaller than in *chlorodamas.* South-East Peru. — **madyes** *Doubl.* Under surface of *madyes.* the hindwing streaked with black on the veins. Bolivia. — **tucumanus** *R. & J.* (6b), like *madyes,* but the *tucumanus.* apex of the forewing beneath not washed over with yellow; hindwing beneath smoky brown. Tucuman.

P. polystictus (= protodamas *auct.*). Forewing above with three to seven submarginal spots; hindwing with two rows of spots. Abdomen in the ♂ yellowish white above. Brazil, Argentina and Paraguay. Larva similar to that of *P. polydamas;* tubercles shorter, never red. Thoracic horn of the pupa long, inclined somewhat forwards, dorsum of the pupa behind the horn more or less suffused with yellow. Larva gregarious in its earlier stages. This common butterfly flies in open spaces in the forest and on its borders, and is especially fond of feeding on the flowers of Lantana. The food-plant of the larva grows in woods and on the banks of rivers. — In **janira** *R. & J.* the spots on the upper surface are *janira.* large. Rio de Janeiro; Minas Geraës. — In **polystictus** *Btlr.* (6b) the spots are smaller and sometimes *polystictus.* partly obsolete. São Paulo to Rio Grande do Sul; Paraguay; Argentina.

P. eracon *Godm. & Salv.* (6c). Forewing with a row of submarginal spots. Hindwing with a *eracon.* uniformly curved band of spots, placed about midway between the cell and the outer margin. Under surface of the hindwing with red submarginal spots, each with a yellowish white dot at the outer side. West Mexico, hitherto only known from Colima and the province of Guerrero.

P. belus. Forewing of the ♂ without white spots on the upper surface; hindwing with one to seven white spots on the disc, the first of which is always large; the forewing of the ♀ is similar to that of the ♂ or it has a large pale yellow area. Hindwing beneath in both sexes with white dots outside the red submarginal spots. The ♂ is called by BATES a swift and bold flier; the ♀ with yellow area on the forewing he found on flowers at the edge of the forest. The ♀♀ of this, as also of the following species, are much more rarely caught than the ♂♂. — **chalceus** *R. & J.,* from the province of Guerrero, West *chalceus.* Mexico, has an almost straight band on the hindwing, and on the under surface there is before the subcostal nervure a red submarginal spot, which is wanting in the other subspecies. — **varus** *Koll.* ♂: *varus.* hindwing with a band of spots diminishing in width posteriorly. The ♀ occurs in two forms. The common form is ♀-f. **latinus** *Fldr.,* it is similar to the ♂, but the forewing has some submarginal spots and the first *latinus.* spot of the band of the hindwing is about as large as the second. The very rare form with large yellowish area on the forewing, occupying the extremity of the cell and the adjacent part of the disc, is ♀-f. **varus** *Koll.* Distributed from Guatemala to North-East Ecuador and North Venezuela; the ♂ common in Bogotá-collections. — **belus** *Cr.* (6c) is the form which inhabits the Guianas, the Amazons, East Peru and Goyaz. *belus.* In the ♂ the hindwing has usually only one white spot, yet specimens occur which have a row of small spots in the disc. Two forms of the ♀ are known; ♀-f. **belus** *Cr.* (= caburi *Kaye*) is similar to the ♂ and has on the hindwing either only one spot or a complete row; in ab. **amulius** *Esp.* the spots on the under *amulius.*

surface of the hindwing are yellow (only known from Esper's and Martyn's figures). The second variety
amazonis. of the ♀ is ♀-f. **amazonis** *R. & J.* (6c); it has a yellow area on the forewing like the ♀-f. *varus* of the sub-
belemus. species *varus Koll.* — **belemus** *Bates* from the south side of the Lower Amazon has a straight band on the
cochabamba. hindwing; only the form of the ♀ similar to the ♂ is known. — **cochabamba** *Weeks.* ♂: hindwing usually
with a broad straight macular band; sometimes the last five spots small, very rarely wanting. Scent-scales
short as in the Mexican subspecies. The ♀ is not known. South-East Peru; Bolivia.

P. laodamas. Similar to the preceding species. Hindwing above with a broad macular band; the
red submarginal spots on the under surface narrow, not accompanied by white dots. The ♀ resembles the ♂,
procas. but the middle spots on the hindwing are large, whilst the first is small. Mexico to Colombia. — **procas**
Godm. & Salv. ♂: the band on the hindwing is usually contiguous to the cell or crosses its extremity, it
iopas. is rarely separated from the cell (ab. **iopas** *Godm. & Salv.*). ♀: band on the hindwing usually occupying
the extremity of the cell. West Mexico, known from the provinces of Michoacan, Jalisco and Guerrero. —
copanae. **copanae** *Reak.* (= chrysodamas *Bates*). Band on the hindwing in ♂♀ separate from the cell; the red sub-
marginal spots on the under surface of the hindwing narrower than in *procas.* Scent-scales longer than in
rhipidius. the preceding form. East Mexico to Honduras. — **rhipidius** *R. & J.* Hindwing in both sexes with very
large greenish white central area, which in the ♂ fills up the cell almost to the base, in the ♀ to the first
laodamas. quarter. Costa Rica. — **laodamas** *Fldr.* (6d) is the best-known form, which is very common in Bogotá-
collections; it is known from the west coast, the Magdalena Valley and the Cordillera of Bogotá. The first
spot on the band of the hindwing is very large and reaches almost to the base; it touches the cell, as do
the next two or three spots. The ♀ is not known.

lycidas. **P. lycidas** *Cr.* (= erymanthus *Cr.*) (6d) is easy to recognise by the white stripe before the hindmargin on the upper surface of the hindwing; this stripe is shorter in the ♀ than in the ♂. — Guatemala to Bolivia and Pará. Appears not to vary geographically. There is only one form of the ♀ known. The ♂ occurs commonly at the edges of water-courses. Like the allied species the butterflies first fly a few times round the places where they are going to alight to drink, as if they wished to make sure of the absence of enemies; but they are not easily disturbed when once they have begun to drink.

crassus. **P. crassus** *Cr.* (6d). A very long-winged species, distributed from Costa Rica to Rio de Janeiro.
Forewing with white patches in and below the cell; hindwing with large white costal area, which in the ♂
lepidus. reaches to the base. In the ♂-f. **lepidus** *Fldr.* the white patches on the upper surface of the forewing
are wanting. — The black-brown larva (probably variable in its ground-colour) has no spots. The thoracic
hump of the pupa is very long and divided at the tip.

B. Fluted-Papilios.

Here belong the greatest part of the Swallowtail species. Although the forms have followed very different lines of development and often in their outward appearance have not preserved the slightest resemblance to one another, yet this apparently heterogeneous mixture of species is distinguished by sharply marked characters from the other two divisions of the Swallowtails, namely the Aristolochia-Papilios and the Kite-Papilios. The segments of the scaleless antennae are somewhat narrowed at the base; the fine sensory hairs are almost equally distributed over the ventral surface or confined to two large, non-impressed lateral areas. The tarsi are likewise not scaled; the dorsal spines of the segments are separated from the ventral spines by a spineless, impressed lateral space. The abdominal margin of the hindwing in both sexes is curved downwards, forming a kind of groove; a scent-organ is wanting on the hindwing. The tibiae of the ♂ are never thickened nor covered with fine hairs. — The larva is either smooth, without humps, or the tubercles are hard and spiny, not fleshy. The third and fourth thoracic segments are enlarged, so that the larva appears thinner in front and behind. Many of the larvae bear on the thorax on both sides a sort of eye-spot and on the middle of the body a saddle-patch. Plants of very many families serve as food, partly herbs (Umbelliferae, Composites, etc.), but still more often the leaves of trees. — The pupa is wrinkled like leather and often resembles a piece of wood. The head is produced into two tubercles or is truncate, and the thorax bears a usually rather short horn. The wing-cases are expanded much less in mussel-shape than in the Aristolochia-Papilios, and the humps on the abdomen, if present at all, are very short.

The Fluted-Papilios occur in all tropical and temperate regions (New Zealand excepted), and extend northwards with one species as far as the arctic zone. They are therefore the most widely distributed division of the Swallowtails. In their habits they differ quite as much from one another as is their garb. Most species are good fliers, which if frightened hurry away in frantic haste. They almost all visit flowers, especially the ♂♂, and are fond of resting on damp sand or mud. Here their difference in character from the Aristolochia-Papilios becomes apparent, in that they do not crowd together in thick clusters, but rest singly round the outside of the crowd formed by Pierids and Kite-Papilios. Very many of the Fluted-Papilios wear the dress of other butterflies. In America Danaids, Heliconids, Pierids, and especially

Aristolochia-Papilios serve as models. In some cases only the ♀, or one of the ♀-forms, is mimetic. Among the American Fluted-Papilios are found a number of powerfully built species with the costal margin of the forewing dentate. We find something similar in the ♂♂ of the Indo-Australian Pierid genus *Prioneris,* and in the Nymphalid genera *Charaxes, Eulepis, Euxanthe* and *Palla,* which are all Old World insects. The dentition of the costal margin of these butterflies is evidently a phenomenon accompanying the strengthening of the margin, which is closely related to the acquisition of a strong flight.

Sexual dimorphism is very common among the Fluted-Papilios; as a rule one ♀-form resembles the ♂, whilst the other is mimetic. Sharply pronounced seasonal dimorphism is not observed among the American Fluted-Papilios, yet in the few North American forms which belong here, the butterflies which emerge from the hibernated pupae are generally smaller and more hairy than the summer brood, showing also slight differences in the markings. The trimorphism in both sexes of *P. polyxenes* and *P. bairdi* is very note-worthy.

Machaon-Group.

The species of the *machaon*-group have ringed larvae, which live on Umbelliferae, partly also on Artemisia.

P. polyxenes. Abdomen black, dotted with yellow. Palpi yellow. The posterior yellow spots of the discal band of the forewing remote from the cell, the discal band sometimes wanting. Geographically and individually very variable. The earlier stages very similar to those of *P. machaon.* The forms of North and Central America fly like *P. machaon* in cultivated districts, over meadows and fields covered with flowering fodder-plants, especially clover, at little distance from the ground. The South American forms only occur at considerable elevations. We have here the same phenomenon which we observe in Asia of *P. machaon,* which is likewise a high mountain species south of the Himalayas, in North-East India, Sikkim and Burma. — **americus** *Koll.* (= sadalus *Luc.*) occurs in three varieties. In the form **melasina** *R. & J.* (8a) the yellow band on the wings is very much narrowed, sometimes reduced to a small spot, whilst in the true *americus Koll.* the band is broad, especially on the hindwing; the pale yellow area on the underside of the hindwing not seldom reaches to the base. The black form lives especially in the Cauca Valley, Colombia, but also occurs elsewhere together with the ordinary form. Venezuela, Colombia, Ecuador and North Peru, occurring only at considerable heights, found up to about 3000 m. — **stabilis** *R. & J.*, very similar to the usual *americus* form, always with a broad yellow band, the last spot of the band of the forewing shorter than in *americus,* the band on the hindwing beneath sharply defined at the basal side. Costa Rica to Panama, common at a height of 1000 to 1300 m. — **asterius** *Cr.* (= asterias *F.*) is in some districts very variable, in others pretty constant. The ♂ is much more variable than the ♀. We distinguish three principal forms of the ♂, which are connected by intermediate stages and occur all three together in many districts. ♂-f. **asterius** *Cr.* has a macular band which traverses the extremity of the cell of the hindwing. Specimens with almost pure white spots on the upper surface are ab. **semialba** *Ehrm.* The ♂-f. *asterius* occurs from New England to South Mexico. The second variety is ♂-f. **curvifascia** *Skinn.* from Mexico and Guatemala; in this the band of the hindwing is placed outside the cell and is almost uniformly curved. The most striking form is the ♂-f. **ampliata** *Mén.* (= asterioides *Reak.*), in which the band is broken up into small spots, which are often partly absent from the forewing. This black form is common in West Mexico, but also flies singly in East Mexico, and one specimen has been bred in Colorado. The ♀ of *asterius* is much less variable. A few striking aberrations of both sexes have been named: in ab. **calverleyi** *Grote* the submarginal spots are very strongly enlarged and merged into a broad band; in ab. **alunata** *Skinn. & Aar.* on the contrary the submarginal spots on the hindwing are very small and bluish. — **polyxenes** *F.* (8a). The ♀ resembles the ♂, the band of the hindwing is on the whole somewhat broader than in ♂-f. *asterius.* Cuba. — **brevicauda** *Saund.* (= mediocauda *Eimer*). Sexes similar to one another, wings broad and short, outer margin of the forewing somewhat rounded. Inhabits Newfoundland, Anticosti and the districts adjoining the lower course and the estuary of the St. Lawrence River; June to August; the larva on parsley and other Umbelliferae near the coast and the river.

americus.
melasina.
stabilis.
asterius.
semialba.
curvifascia.
ampliata.
calverleyi.
alunata.
polyxenes.
brevicauda.

P. bairdi *Edw.* Either similar to *P. machaon,* but the anal ocellus with black pupil, or similar to *P. polyxenes,* or standing between the two in its markings. These three forms, which occur together in Colorado, are: f. **oregonia** *Edw.* (= brucei *Edw.*) (8a), *machaon*-like, known from Colorado, Oregon, Washington Territory, West Canada and British Columbia. The second form, which is known from Utah, Colorado and Arizona, is f. **hollandi** *Edw.;* the abdomen is *machaon*-like, whilst the wings resemble those of the following form. In f. **bairdi** *Edw.* (= utahensis *Streck.*) (8a), which is found in Arizona, Colorado and Utah, the black abdomen is spotted. The identity of the three forms has been established by breeding. Such non-seasonal trimorphism in both sexes is rare. The butterfly flies in Colorado together with *P. polyxenes asterius,* and in Oregon and further north with *P. zelicaon,* but the insects are independent of one another. Whilst the larvae of the allied species feed on Umbelliferae, those of *P. bairdi* live on a Composite (Artemisia); the larvae of all these butterflies are very similar to one another.

oregonia.
hollandi.
bairdi.

nitra. **P. nitra** *Edw.* (8b). Wings shorter than in *P. bairdi;* very similar to f. *bairdi;* perhaps only a northern subspecies. — Known from Montana and West Canada; in the mountains in June and July.

zelicaon. **P. zelicaon** *Luc.* (= zolicaon *Boisd.*) (8b). The yellow discal area behind the 2. median of the forewing extending close to the cell; underside of the abdomen black, with or without an indication of yellow lines. — On the west coast a common insect, descending into the lowlands. From Arizona northwards to Alaska and eastwards to Colorado. Found up to a height of 3000 m. The larvae on Umbelliferae.
coloro The ab. **coloro** *Wright* is founded on an old, dark yellow coloured specimen.

P. indra. Thorax above anteriorly with yellowish lateral stripes. Spots on the wings whitish yellow, much paler than in the allied species; the size of the spots rather variable. — A western mountain species, which is difficult to catch; it occurs up to a height of 3500 m, and by preference inhabits rocky land, where the butterfly suns itself on the rocks. It does not frequent flowers and is a shy, swift flier. No satisfactory observations of the earlier stages have been made. The larva according to Edwards lives
indra. on Artemisia. There are two subspecies. — The northern form with short tail is the true **indra** *Reak.* (8b);
it occurs in Colorado, Nevada, Utah and northern California. — The form which flies in the mountains near
pergamus. the coast of South California at 600—1000 m height is **pergamus** *Edw.;* it is distinguished by its
long tail.

aliaska. **P. machaon.** This Palaearctic species is represented in America by the subspecies **aliaska** *Scudd.* (= joannisi *Verity*) (8b). The black band on the hindwing is broader than in the geographically nearest subspecies *kamtschadalus*. *Aliaska* is rather common in July and August in Alaska, at the mouth of the River Yukon and on other rivers, as well as in the neighbourhood of lakes, probably everywhere in the lowlands where Umbelliferae grow. The insect is however still rare in European collections. Eastward *aliaska* occurs as far as Hudson's Bay.

Thoas-Group.

The following species of the *thoas*-group have all a spatulate tail. The larvae bear a saddle-spot before the middle and a large diffuse sidepatch on the last segments.

P. thoas. The spatulate tail has a yellow spot in the middle. The species occurs from Texas and
the West Indian Islands southwards to Buenos Aires, but is wanting on the Lesser Antilles. It is every-
where common and flies in the open country, in gardens and plantations. *Thoas* is a very bold flier, which
melonius. often mounts high in the air. The larva lives on Piperaceae and Citrus. — **melonius** *R. & J.* is the sub-
species from Jamaica; it has no cell-spot on the upper surface of the forewing. The reddish yellow spots
oviedo. on the under surface of the hindwing are very large. — **oviedo** *Gundl.* (= epithoas *Oberth.*) occurs on
Cuba. The upper surface of the forewing, and especially the under surface, are more extended yellow and
autocles. have also a deeper tint than in the other subspecies. — **autocles** *R. & J.*, occurring from Texas to
nealces. Nicaragua, has no cell-spot; the yellow areas are pale. — **nealces** *R. & J.* is distributed from Nicaragua
to North-West Ecuador and eastward to Trinidad and the Lower Orinoco. The forewing has always a
cell-spot; the yellow tint is somewhat deeper than in *autocles*, but less deep than in the next subspecies;
very common in Bogotá-collections. — **thoas** *L.* comes from the Guianas and the Lower Amazon. Deep
cinyras. yellow; forewing with cell-spot, the first spot near the apex of the wing usually small. — **cinyras** *Mén.* is
a large form, which inhabits the Middle and Lower Amazon and the eastern slopes of Ecuador, Peru and
brasiliensis. Bolivia; the submarginal spots of the forewing are almost always absent. — **brasiliensis** *R. & J.* (7a),
from Brazil, Paraguay and North Argentina, is often still larger than *cinyras;* the cell-spot of the forewing
is absent or small, the first spot near the apex of the wing is mostly large and produced into a point. —
thoantiades. **thoantiades** *Burm.* occurs in Argentina, especially in the province of Buenos Aires. It is a small form,
usually with narrow, pale yellow band.

homothoas. **P. homothoas** *R. & J.* (7c). Tail shorter and more rounded at the tip than in the *thoas*-forms from South America; no cell-spot on the forewing. Genitalia quite different from the organs of *P. thoas;* instead of the long anal clasper of *thoas* there is a short fork, the teeth of which are curved right and left; harpe broad, rounded. Orinoco, Colombia, Marguerita Island off the coast of Venezuela.

cresphontes. **P. cresphontes** *Cr.* (7a). Usually considered a slightly different variety of *P. thoas.* No cell-spot on the forewing; the fifth discal spot projecting further than the sixth. Claspers of the ♂ separate above, the anal hook quite short, the lower part of the anal segment likewise quite different from that of *P. thoas;* harpe broad, rounded. A common species in eastern North America, occurring as far as Costa Rica in the south and southern Canada in the north; but the insect is a wanderer, which is found only now and then in the northern districts. In the United States it does not extend westward beyond the Mississippi plain, except in the Southern States. Its true home is the region adjoining the Gulf of Mexico. It occurs also on Cuba.

thrason. *paeon.*

P. paeon. Sexes similar, as in the preceding species. Tail without yellow spot at the tip, the marginal spot behind the tail large. The larva on Pastinaca sativa and probably other Umbelliferae, resembling bird-droppings; thorax strongly swollen; in paler specimens the markings, which resemble those of the *thoas* and *cresphontes* larvae, scarcely visible. The pupa, in which stage the species remains about three weeks, is of the same shape as in the previous species. — In **thrason** *Fldr.*, from Colombia and North Venezuela, the marginal spot behind the tail is very long, extending to about the third quarter of the tail. — **paeon** *Boisd.* (7 c) is the southern form, in which the marginal spot only extends to the middle of the tail; the black marginal lines on the under surface of the hindwing broad, strongly curved between the veins. Ecuador, Peru and Bolivia; formerly (perhaps erroneously) recorded from Chile.

caiguanabus

P. caiguanabus *Poey* (= numicus *Hopff.*) (8 c). A species which has a peculiar appearance owing to the absence of the yellow discal bands and the enlargement of the submarginal spots. — Only on Cuba, rather rare, commoner in the eastern part of the island than in the western.

aristor.

P. aristor *Godt.* (8 d). From Haiti; the only known specimen (Godart's name-type, which was in the Paris Museum, seems to have been destroyed) is in the large collection of Mons. Charles Oberthür; it was found near Port au Prince. Forewing with two rows of yellow spots; the discal row curved, not extending to the hindmargin, the outer row complete; hindwing with a row of yellow spots. Underside of the forewing with a yellow spot in the cell.

temenes. *aristodemus*

P. aristodemus. Wings marked similarly to those of *P. thoas;* cell of the forewing beneath quite yellow; tail black above, beneath with a yellow patch in the middle. Cuba, Haiti and Porto Rico; two subspecies. — **temenes** *Godt.* (7 c) is the form from Cuba; the yellow discal band is broad and the forewing has 5—7 submarginal spots. — In **aristodemus** *Esp.* (= daphnis *Gray;* cresphontinus *Kirby*), from Haiti and Porto Rico, the discal band on the forewing is narrow and the row of 4 submarginal spots is strongly curved.

andraemon. *bonhotei.* *tailori.*

P. andraemon. An almost straight yellow band from the apex of the forewing to the middle of the hindmargin of the hindwing, a transverse area in the cell of the forewing and a short costal band outside the cell. Hindwing strongly dentate; tail with spot in the middle. The larva lives upon Citrus and Ruta; the second and third segments have a pale transverse band and the olive-brown segments 5—7 are laterally spotted with white, the 10. and 11. segments also bear white spots. — **andraemon** *Hbn.* (8 b), which occurs on Cuba, has no distinct submarginal spots on the upper surface of the forewing. — **bonhotei** *Sharpe* is the form from the Bahamas, with pale markings and distinct submarginal spots on the upper surface of the forewing. — **tailori** *R. & J.*, from Great Kayman, has no distinct cell-spot on the forewing.

machaonides.

P. machaonides *Esp.* (= lycoraeus *Godt.*) (9 a) takes the place in Haiti of the preceding species, which is wanting there. The discal band of the forewing is interrupted, the posterior part contiguous with the cell-spot, forming an oblique band. Nothing is known as to the habits of this beautiful insect. The negro republics of St. Domingo and Haiti are as good as closed against the white collector.

thersites.

P. thersites *F.* (9 a) is similar to the well known *P. lycophron Hbn.* In the ♂ the yellow band on the forewing is very broad and the cell-spot very large. In the ♀ the forewing has a curved yellow band. — Jamaica. The larva like that of *P. lycophron.*

ornythion.

P. ornythion *Boisd.* (7 b). Forewing without cell-spot; discal band narrow; forewing beneath with a row of narrow spots between the discal band and the submarginal spots. — Yucatan, West Mexico and Guatemala.

pallas. *hippomedon.* *phanias.* *lycophron.* *oebalus.* *pirithous.*

P. lycophron. Submarginal spots on the hindwing above and beneath large, hindwing beneath with a row of strongly curved reddish yellow crescents. The ♀ occurs in two forms in many districts; it is always unlike the ♂. The larva, which lives on Citrus, is mottled with brown; the yellow lateral spots are large. Mexico to Argentina and South Brazil; several subspecies; is said to occur also on St. Lucia. — In **pallas** *Gray* the ♂ has a discal band broken up into spots; the submarginal spots on the forewing are distinct. In the ♀ the first or the first two submarginal spots are wanting; tail short; hindwing with three rows of spots. Mexico to Costa Rica. — **hippomedon** *Fldr.* (= theophron *Fldr.*). A small form with rounded hindwing; submarginal spots on the hindwing small; tail short. ♀ not known. Colombia and North Venezuela. — **phanias** *R. & J.* Similar to the following subspecies; in the ♂ the band on the forewing interrupted by broad black veins; submarginal spots of the hindwing above and of the forewing beneath smaller. ♀ with strongly dentate hindwing; tail narrow, not spatulate; submarginal spots on the hindwing nearer to the margin than in the following form. East Ecuador to Bolivia and Goyaz. — **lycophron** *Hbn.* (= astyalus *Godt.*, mentor *Dalm.*) (8 d) is the form from Brazil, Paraguay and Argentina, the commonest of all. In the ♂ the veins intersecting the bands of the forewing are narrowly black and the submarginal spots on the under surface usually very large. The ♀ in two forms: ♀-f. **oebalus** *Boisd.* is grey-yellow posteriorly on the forewing and from the base to the disc on the hindwing; ♀-f. **pirithous** *Boisd.* (8 d) has a black-brown upper surface with a row of yellow submarginal spots.

P. androgeus. As in the preceding species the sexes are different and the ♀ occurs in many districts in two forms. Tail narrow, pointed. Hindwing above with narrow bluish submarginal crescents, beneath with a regular row of reddish yellow crescents between cell and outer margin. Larva on Citrus; similar to that of *P. lycophron;* as in that species the pupa has on the upperside of the abdomen two rows of small tubercles. The butterfly is common in the open country, in gardens and at the edges of woods. *epidaurus.* West Indies and Mexico southwards to Paraguay and South Brazil. — **epidaurus** *Godm. & Salv.* occurs on Cuba, Haiti and St. Lucia and also inhabits Central America from Mexico to Panama. ♂: the yellow area very broad; ♀: forewing with indications of a yellow band outside the cell; the grey-blue scaling on the *androgeus.* hindwing dense. — **androgeus** *Cr.* (♂ = policaon *Cr.*) (10 a). ♂: the yellow area less pale than in the following subspecies. ♀ in two forms: ♀-f. **androgeus** *Cr.* (10 a) has on the forewing two large yellow *piranthus.* patches, sometimes also a small spot; in the ♀-f. **piranthus** *Cr.* these spots are wanting or are merely indicated, the metallic scaling of the hindwing is not dense and extends into the cell. From Colombia to *laodocus.* Bolivia, Matto Grosso and Pará. — **laodocus** *F.* (10 a) inhabits Brazil proper, southwards to Paraná. The yellow area of the ♂ is pale, the small spots placed before the extremity of the cell are smaller and often entirely wanting. Only one ♀-f. known; this is similar to the ♀-f. *androgeus* of the preceding subspecies, but the upper yellow spot is smaller than the second.

Glaucus-Group.

The following species of the *glaucus*-group, with the exception of *P. pilumnus*, have in the hindwing a broad, strongly asymmetrical cell. The abdomen is striped longitudinally, not spotted. On the forewing the marginal band is connected with the 5. transverse band by a costal hook-shaped spot, whilst on the tailed hindwing a band running along the hindmargin forms a large V with the median band. The larva has an eye-spot on each side of the 3. thoracic segment and on the 4. segment a black transverse dorsal line, which, however, is wanting in *pilumnus*. The eggs are laid singly on leaves. The larva spins on the upper side of a leaf a silk cushion on which it rests. The edges of the leaf are more or less bent together by the threads. — The species occur in North America and Mexico, and inhabit the open country.

P. glaucus. The subapical hook-mark of the forewing is yellow in the middle, black at the edges; hindwing beneath more or less orange proximally to the black postdiscal line. The ♀ occurs in two forms, with the exception of the northern districts. Larva polyphagous, especially frequent on Rosaceae, lime, birch, ash, etc., in the North one generation, in the Middle States two and in the South three generations. The butterfly is very common; it visits flowers, and is also fond of feeding on putrid or strongly smelling substances. The motion up and down is rather swift, and when the insect is frightened and takes to flight, it hurries away with violent flapping of the wings in an irregular zigzag course. Two geographical forms. — *canadensis.* **canadensis** *R. & J.* is a small form with broad black hindmarginal band on the hindwing; the yellow submarginal spots on the under surface of the forewing form a continuous line. From Newfoundland to Alaska and southwards to New England. — **glaucus** *L.* (♂ = turnus *L.*, antilochus *L.*, australis *Mayn.*). The black abdominal margin of the hindwing narrower than the interspace between it and the cell; the 3. black band on the forewing on the whole shorter than in the northern form. The ♀ is dimorphic. Intermediate specimens *turnus.* are rare. The ♀ resembling the ♂ is ♀-f. **turnus** *L.* (9 b); in the second form the ground-colour is brown-black *glaucus.* and the bands consequently stand out only very faintly: ♀-f. **glaucus** (9 a). From southern New England *fletcheri.* to Florida and the Mississippi Plain. ♂♂ with enlarged irregular black markings are the ab. **fletcheri** *Kemp.*

rutulus. **P. rutulus** *Luc.* (9 b). Forewing more pointed than in *glaucus,* the hook-mark much less scaled with yellow; hindwing without orange spot proximally to the black postdiscal line. Harpe of the ♂ with *ammoni.* simple dorsal hook and the apex of the harpe dorsally to the apical spine not rounded. ab. **ammoni** *arizonensis.* *Behrens* is founded upon dark yellow specimens (turned yellow?) from Nevada, and ab. **arizonensis** *Edw.* refers to specimens with broad black bands. — The larva lives upon willow, it is very similar to that of *glaucus,* but the thoracic spot is more oblong. The insect is an inhabitant of the west side of the continent, where it occurs from British Columbia to Arizona and Colorado. It is there fully as common as *glaucus* in the east and is chiefly found at the lower levels, although it also occurs in the mountains.

daunus. **P. daunus** *Boisd.* (= multicaudata *Kirby*) (9 c). An extremely variable species both in the extent of the black bands and in individual size. Hindwing more strongly dentate than in the preceding species. The tooth behind the tail nearly always prolonged to a short pointed tail. The hook-mark on the forewing is always scaled with yellow along the centre, the bands are narrower than in *rutulus,* the 4. black band of the forewing is narrower than the apical yellow cell-space. Southern specimens are on the whole larger than northern ones. — Larva on Rosaceae, very similar to that of *glaucus.* The insect occurs from British Columbia and Alberta southwards to Guatemala; it is a species of the mountainous and prairie-like districts, which speeds along in swift, untiring flight, without stopping at flowers.

eurymedon. **P. eurymedon** *Luc.* (= lewisi *Kirby*, arizonensis *Wright*) (9 c). Ground-colour paler than in the allied forms, the black bands broad; the hook-mark on the forewing not filled up with yellowish white either above or beneath. Dorsal hook of the harpe of the ♂ shorter than in the allied species. Specimens occur sometimes in high mountains in which the marginal band of the forewing in the middle is about as broad as the yellowish white discal area, they are f. mont. **albanus** *Fldr.* — Larva on Rhamnus californica: *albanus.* the 3. and 4. segment above with small ring-spot, the black and yellow transverse dorsal line posteriorly on the 4. segment rather broad. A common mountain species, distributed from British Columbia to Colorado. The butterfly visits flowers, especially thistles and mint, and frequently drinks at puddles in large numbers. Its flight is swift and agile.

P. alexiares. A broad-banded Mexican butterfly. The distal margin of the forewing is straight or very feebly concave; the hook-mark on the underside centred with yellow and this yellowish scaling continuous with the grey or yellowish line situated on the black postdiscal band. On the disc of the hindwing beneath more or less large orange-coloured patches. Early stages not known. Eastern Mexico; two subspecies. — **garcia** *R. & J.* (9 b). Yellowish apical cell-area about as broad as the black band placed *garcia.* at its distal side. The black marginal band not broader in the middle than the yellow discal band; the yellow submarginal spots on the under surface of the hindwing narrow, more or less distinctly separated from one another. Monterey, province of Nuevo Leon. — **alexiares** *Hopff.* The yellow parts more or less *alexiares.* dusted over with black, the black bands broader than in *garcia,* the posterior yellow submarginal spots are wanting on the upper surface of the forewing, whilst the submarginal spots on the under surface form a rather broad continuous band. Cuesta de Misantla, in Vera Cruz.

P. pilumnus *Boisd.* (9 c). A less specialised form than the preceding ones. Cell of the hindwing *pilumnus.* almost symmetrical, tibiae and tarsi pale greenish. Hindwing above with 2 sharply defined orange spots; the proximal arm of the large V of the hindwing on the under surface divided longitudinally by a grey line. — The larva recalls that of *troilus.* The insect occurs in the open, high-lying Savannas of Arizona and Mexico southwards to Guatemala.

The two following species, *troilus* and *palamedes,* like the preceding forms, are Nearctic and form the transition to the mimetic *anchisiades*-group, which they approach rather closely in the early stages and in structure.

P. troilus. Black; thorax and abdomen with small yellowish spots; both wings with a row of submarginal spots, those on the forewing smaller in the ♀ than in the ♂; hindwing with bluish grey-green discal area. On the under surface the hindwing has a discal and a submarginal row of orange-coloured spots and distally to the discal row large metallic blue spots. The larva has a large eye-spot on each side of the 3. thoracic segment and large blind spots on the 4. It lives on the upper side of a leaf in a tube which is formed by the edge of the leaf being so strongly bent over to the middle rib that it comes to lie close against the upper surface. It is mostly found on sassafras and benzoin, Lauraceae, but also lives on other plants, as Magnolia, Prunus, Pirus, etc. Hibernates as pupa. Two broods. The butterfly usually hovers only a few feet above the ground, flying nimbly in quest of the flowers on which it feeds. Canada to Florida and Texas. — In **troilus** *L.* (= ilioneus *Abb. & Smith*) (8 c) the submarginal spots on the under- *troilus.* side of the hindwing are bluish grey-green. Canada to Georgia and Texas, westward as far as the foot of the Rocky Mountains. In ab. **radiatus** *Streck.* the submarginal spots of the hindwing on the upperside are *radiatus.* enlarged to longitudinal stripes. Specimens also occur in which the submarginal spots of both wings extend to the outer margin. — **texanus** *Ehrm.* has on both wings larger submarginal spots than the preceding sub- *texanus.* species; many specimens have a pale subbasal band on the under surface. Florida; Texas (?).

P. palamedes. Antenna brown; tibiaė and tarsi green; abdomen striped with yellow. Markings on the underside of the wings pale yellow; 2 rows of spots on the forewing besides the marginal spots, the discal row doubled towards the costa: on the hindwing a discal band and a row of submarginal spots, and in addition, especially in the ♀, blue spots are present outside the discal band. On the under surface the hindwing has a narrow subbasal band and the discal band is dentate and more or less orange like the submarginal spots. The larva is very similar to that of *troilus* and has the same habits. On Magnolia. The butterfly is common in Florida in the spring. Distributed from Virginia southwards as far as North-East Mexico. The ♀ is more brownish black than the ♂. — **palamedes** *Drury* (= chalcas *F.*, chalcus *F.*, flavo- *palamedes.* maculatus *Goeze*). The discal spots of the forewing are large, the cell has nearly always a spot. Virginia to South Florida and Texas, yet also found even in Nebraska. — **leontis** *R. & J.* (8 c). A small form with *leontis.* reduced discal spots; forewing without cell-spot on the upperside or with only a very narrow streak. Monterey, province of Nuevo Leon, Mexico. (On pl. 8 the name is erroneously printed *leontia.*)

Anchisiades-Group.

In the species of the *anchisiades*-group the pronotum and thorax are at least partly spotted with red or yellow-red. The abdomen is black and has no light markings except a basal lateral spot and streak. The cell of the forewing beneath is not streaked with yellow and the hindwing has no blue spots. The larvae, so far as is known, are marmorated; the light colour forms before the middle, especially laterally, a large irregular spot; on each side a subdorsal row of tubercles. The larvae are shiny and superficially resemble those of Tenthredinidae; they rest in larger numbers on leaves or the trunk and are mostly found on Citrus. Pupa resembling a short broken-off twig; the thoracic horn not long.

P. hyppason *Cr.* (= hippason *Esp.*) (10 b, c). Tailless. Pronotum spotted with red. Hindwing
beneath with red basal spot behind the cell. Subcostal of the hindwing much more proximal than the
hyppason. 2. median. Sexes different from one another, each variable in itself. ♂-f. **hyppason** *Cr.* (= hippasonides
ptilion. *Grose-Smith*) has a broad band on the forewing, mostly abbreviated. In ♂-f. **ptilion** *R. & J.* the band of
the forewing is narrow and placed farther from the cell. The ♀ occurs likewise in 2 principal forms: ♀-f.
amosis. **amosis** *Cr.* has a black forewing, on which scarcely a trace of white discal spots is visible. In ♀-f.
paraensis. **paraensis** *Bates,* on the contrary, the forewing has one or several white or yellowish white spots. These
forms occur together, though not everywhere. — The Guianas to Pará, the Amazon upwards to Peru and
southwards to South-East Bolivia; not known from Brazil proper, Ecuador, Venezuela and Colombia. The
butterfly is found at the edges of swampy woods and has a swift flight.

P. pelaus. With spatulate tail. Sexes similar, but the markings in the ♀ somewhat enlarged and
on the hindwing more numerous than in the ♂. Black, forewing with oblique white band from the costa
to the anal angle; hindwing with complete (♀) or incomplete (♂) row of pale red submarginal spots;
beneath there are usually also small discal spots present, which sometimes in the ♀ also occur above. West
pelaus. Indies. — **pelaus** *F.* (= ornofagus *Weidem.*, peleus *Gmel.*) (7 b) has a proportionately broad white band on
the forewing, which above, at least in the ♀, also enters the extremity of the cell. Jamaica and Cuba;
imerius. perhaps the specimens from Porto Rico also belong here. — In **imerius** *Godt.* (= augias *Mén.*) the band
of the forewing is narrower anteriorly, on the other hand its last spot is on the whole broader than in the
preceding form, and the spots on the hindwing are smaller. Haiti.

oxynius. **P. oxynius** *Hbn.* (= augustus *Boisd.*) (10 b). Similar to *pelaus,* but the band of the forewing only indicated; the marginal spots of both wings large. — Only known from Cuba. Larva on Xanthoxylum, gregarious by day, resting on the trunk and branches.

epenetus. **P. epenetus** *Hew.* (10 b). Tailless; the ♀ paler than the ♂; forewing without spots except at the margin; hindwing with large yellowish white marginal spots and in the ♀ usually also some small discal spots. — From Western Ecuador, not known from the east side of the Andes. Haensch found the larvae in June in large numbers on Citrus.

chiansiades. **P. chiansiades** *Westw.* (= chinsiades *Kirby*) (10 d). On the upper surface of the forewing before the hindmargin a large yellowish white spot; on the hindwing posteriorly some red discal and submarginal spots, the spots of the two rows separated from one another; the tooth of the 3. radial prolonged into a short pointed tail. The ♀ and the earlier stages not known. — Eastern slopes of the Andes of Ecuador and Peru, likewise on the Upper Amazon.

pharnaces. **P. pharnaces** *Doubl.* (= phanostratus *Godm. & Salv.*, polycharmus *iid.*) (10 c). More or less distinctly tailed, hindwing with two separated rows of red spots, the proximal spots in the ♂ often very small. — Mexico, distributed from the Atlantic to the Pacific.

erostratus. **P. erostratus** *Westw.* (= herostratus *Fldr.*, ♀ = rhetus *Gray*) (10 c). Like the preceding species, but in the ♂ the spots on the upper surface of the hindwing yellowish white. In the ♀ the spots red also above, larger than in the ♀ of *pharnaces,* the marginal spots of both wings also somewhat larger than in the foregoing species. Tail long and narrow. — Guerrero in West Mexico (where *pharnaces* also occurs), Guatemala and British Honduras. Commonest in hilly country at a height of about 5000 ft.

rogeri. **P. rogeri** *Boisd.* Forewing lighter in colour from the apex of the cell outwards, the dark basal area rounded distally; hindwing with suggestion of a small tail; some red spots on the disc, in two separate rows, in the ♂ the proximal spots very small, usually only indicated; in the ♀ all the spots larger than in the ♂. — Larva not known. Yucatan and British Honduras.

P. anchisiades. A widely distributed variable species. Hindwing posteriorly somewhat prolonged,
therefore more or less triangular; the tail is wanting or is only somewhat longer than the other marginal
teeth, yet in the ♀ sometimes as long and pointed as in the following species. The red spots of both the
rows of the hindwing on the underside partly contiguous, or at least two pairs placed quite close together.
Larva on Citrus, often resting together in hundreds on the stems. A very common insect, which is fond
idaeus. of drinking at moist places on the banks of rivers; not a forest species. — **idaeus** *F.* (= pandion *Fldr.*,
pandonius *Stgr.*). Forewing usually with a distinct white spot at the end of the cell above and beneath or
anchisiades. only beneath. Central America, from Mexico to Panama. — **anchisiades** *Esp.* (= anchises *L.* partim,
theramenes *Fldr.*, pompeius *Kirby*) (10 d). Very variable. Forewing with two white spots posteriorly of

the 1. median vein, either on both sides or only beneath, on the underside also a spot before the 1. median, rarely present above, and sometimes one before the 3. radial. In other specimens the white spots are wanting above; the forewing is dark from the base to the apex of the cell and then paler, and has a row of white spots beneath. From Colombia to Pará and Bolivia. — **capys** *Hbn.* (= evander *Godt.*) (10 c). *capys.* Forewing without white spots on the upperside; the disc paler, the dark proximal area rounded; on the underside a row of white spots, one of which is placed in the cell. East Bolivia, North Argentina, Paraguay and Brazil.

P. isidorus. Forewing on the under surface either without white cell-spot, or the spot small, not extending transversely across the cell. Hindwing posteriorly shorter than in *anchisiades,* the tail short, narrow; the last submarginal spot more distal than the large spot placed before it. The harpe of the ♂ not dentate. Larva not known. Panama to Bolivia; a species of the Andes. — **chironis** *R. & J.* Fore- *chironis.* wing above with 2 white spots between the 2. radial and 2. median and a small cell-spot; the spots beneath much larger, the spot between the 3. radial and 1. median the largest. Chiriqui. — **brises** *R. & J.* Fore- *brises.* wing above without spots, beneath with 2 or 3 spots, but without cell-spot. In Bogotá-collections, probably from the Magdalena and Cauca Valleys. — **flavescens** *Oberth.* The white spots on the underside of the *flavescens.* forewing reduced. The spot placed between the 2. and 3. radial of the hindwing usually white above or beneath or on both sides. East side of the Andes of Colombia, Ecuador and North Peru. — **isidorus** *Doubl.* *isidorus.* (10 d). The white patch on the under surface of the forewing usually enters the cell and is often also indicated above; the red spots of the hindwing on the whole larger than in red-spotted specimens of *flavescens,* the two spots placed between the 2. radial and 2. median separated also on the upper surface. Eastern slopes of the Andes of Bolivia and Peru, northwards to Huánuco.

P. rhodostictus. Differs from *isidorus* chiefly in that the white cell-spot of the forewing at least beneath extends across the cell, the spots on the upper surface of the hindwing are merged in pairs into 3 or more rarely 2 large patches, and the harpe of the ♂ is almost symmetrical. Costa Rica to Ecuador. Larva not known. — **rhodostictus** *Btlr. & Druce* (10 d), from Costa Rica and Chiriqui, has a *rhodostictus.* narrow cell-spot and the discal spot placed before the 3. radial is the largest or the most clearly developed. — **pacificus** *R. & J.* The discal spot between the 3. radial and 1. median is larger than the preceding one; *pacificus.* cell-spot large. West Colombia and West Ecuador. — **nymphius** *R. & J.* Forewing on the upper surface *nymphius.* without cell-spot, the spot between the 3. radial and 1. median on the under surface larger than the preceding spot. Central and East Colombia, not rare in Bogotá-collections. The spots on the hindwing are sometimes whitish.

Torquatus-Group.

In the species of the *torquatus*-group the palpus is yellow; the thorax is likewise yellow or at least spotted with yellow and the abdomen has at least a yellow lateral line. Both sexes are tailed, but the tail in the ♀ is sometimes short and pointed. In colour the ♂♂ and ♀♀ are always different; on the whole the ♀♀ are more black, the ♂♂ more yellow. The larvae are similar in colour to bird-droppings and bear 4 rows of rather long tubercles. The thoracic hump of the pupa is large.

P. himeros. Both wings with yellow band, which is broader in the ♂ than in the ♀; tail with yellow apical spot; submarginal spots of the hindwing in the ♂ yellow, in the ♀ red except the 2 anterior ones. Brazil; a rather rare species. — **baia** *R. & J.* The yellow markings reduced or narrowed. Bahia. — *baia.* **himeros** *Hopff.* (= mentor *Boisd.*, herodotus *Oberth.*). The yellow band on the forewing is contiguous to *himeros.* the cell and is broader than the black marginal area. Minas Geraës; Rio de Janeiro.

P. lamarchei *Stgr.* (11 a). Only the ♂ know. The yellow band narrower than in *himeros,* forewing *lamarchei.* without yellow spot distally of the anterior angle of the cell; hindwing very strongly dentate, tail without yellow spot at the tip. Harpe short and rounded, whilst in *himeros* it is long and pointed. — In Northern Argentina and Bolivia, not rare.

P. hectorides *Esp.* (= torquatinus *Esp.*, pandrosus *Godt.*, chirodamas *Hbn.*) (11 a). In the ♂ the band is still narrower than in *lamarchei.* Hindwing with red spots on the disc. In the ♀ the band is absent or is white; on the forewing it is curved anteriorly towards the costa and on the hindwing does not extend to the abdominal margin; the submarginal spots of the hindwing are red and narrow. The ♀ occurs in three principal forms: ♀-f. **hectorides** *Esp.* (= mecentius *Doubl.*, argentus *Gray*) (11 a) has a white band on *hectorides.* both wings; in ♀-f. **catamelas** *R. & J.* the band is developed on the hindwing, but on the forewing merely *catamelas.* indicated; in ♀-f. **melania** *Oberth.* it is slightly indicated on both wings or entirely absent. These forms *melania.* occur together. — Larva on Citrus and Piperaceae, resting gregariously on the upperside of leaves. The butterfly is common. It is a swift flier, which is found especially at the edges of woods and in the neighbourhood of thickets. Brazil and Paraguay.

P. garleppi. ♂ similar to *torquatus,* but the yellow band broader and the marginal tooth of the
1. median of the hindwing longer; 2 or 3 small spots composed of yellowish and bluish scales placed before
the red anal spot of the hindwing; on the underside the posterior discal spot placed at the 2. median is
very small and bluish. The anal tergite is long and slender; harpe produced into a long point and
furnished with a long pointed process at the ventral margin. The ♀ is not known. East Bolivia, East
garleppi. Peru and the Upper Amazon are the home of the insect. Two subspecies. — **garleppi** *Stgr.* Band of
interruptus. the forewing not interrupted. Bolivia. — **interruptus** *Stgr.* Band of the forewing interrupted. Upper
Amazon and East Peru.
11 b figured

torquatus. **P. torquatus.** ♂: the band of the forewing is interrupted between the 2. and 3. radial, rarely
there is a yellow spot almost filling up the gap; on the under surface of the hindwing a row of red discal
spots, of which the last is placed proximally to the last submarginal spot. The ♀ very different from the ♂,
resembling certain Aristolochia-Papilios which occur together with it; wings brown-black, with or without
white patches on the forewing; hindwing above with two rows of red spots, the proximal row incomplete,
some of the spots merged together in pairs into 2 or 3 large patches. The anal tergite of the ♂ spatulate;
the harpe broad, denticulate. Larva shiny, as if polished (which is also the case in all the allied species),
mottled with light colour, with irregular pale patch before the middle; the colour of bird-droppings. The
butterfly is found in forests and in their neighbourhood; the ♀ is a true woodland species, like the
Aristolochia-Papilios whose dress it wears, whilst the ♂♂ disport themselves more in open, sunny localities.
tolus. Mexico to Brazil, not known from the temperate part of South America (South Brazil, Argentina). — **tolus**
Godm. & Salv. ♂: band of the forewing narrow, the anterior spot long, the 2. short. ♀: forewing without
white discal spots; hindwing with 2 separated rows of red spots. Tail in both sexes long and spatulate.
tolmides. Mexico, apparently rare. — **tolmides** *Godm. & Salv.* ♂: band broader than in *tolus,* tail narrower, no spots,
or only very small ones, before the upper angle of the cell of the forewing. ♀ not known. Chiriqui and
orchamus. Sevilla Island; likewise rare in collections. — **orchamus** *Boisd.* ♂: the spots before the upper angle of
the cell of the forewing small, the first long spot of the yellow band as long as the 2., or somewhat longer,
the submarginal spots of the hindwing usually very distinct. ♀ with a white spot placed across the cell of
the forewing and another spot before the 1. median, as well as usually also a spot before the 3. radial and
an indistinct spot behind the 1. median; 4—6 large red spots on the hindwing, cell with spot, tail short,
leptalea. non-spatulate. Colombia; North Venezuela. — **leptalea** *R. & J.* ♂: yellow band of the forewing narrower
than the black marginal area, narrower than in all the other forms of this species; the spots before the
apex of the cell small; the submarginal spots of the hindwing distinct, the apex of the cell on the under
surface black as far as the base of the 1. median; tail spatulate. ♀ similar to that of *orchamus,* the white
torquatus. spot between the 2. and 3. spot of the forewing and the cell-spot smaller. West Ecuador. — **torquatus** *Cr.*
(= pelaus *F.*) (11 b). ♂: the spots before the apex of the cell of the forewing mostly larger than in the
other forms, the two subapical spots of the band broad, the 1. shorter than the 2., the band at least half
as broad again as the black submarginal area; the submarginal spots of the hindwing usually strongly
darkened by black scaling. The ♀ very variable; the tail always slender, commonly short; 5 principal
theras. forms: ♀-f. **theras** *R. & J.,* forewing with cell-spot, which however does not extend across the cell, and one
caudius. or more spots on the disc; ♀-f. **caudius** *Hbn.* has no cell-spot, but several discal spots, of which the one
patros. placed between the 1. and 2. median is the largest; ♀-f. **patros** *Gray* (11 b) has no white spots on the
flavida. forewing, the patches on the hindwing are red; ♀-f. **flavida** *Oberth.* (= flava *Haase*) resembles *patros,* but
cleolas. the patches on the hindwing are yellow-white; ♀-f. **cleolas** *R. & J.* has no spots on the forewing, but on
its under surface a yellowish white submarginal band. These different forms of the ♀ occur only partly
together, the first 4 are known from the Upper Amazon, but the 5. form, which we have from Bolivia,
may also be found there. East and South Venezuela, the Guianas, the Amazons and the eastern slopes of
polybius. the Andes of Ecuador, Peru and Bolivia. — **polybius** *Swains.* (♀ = tros *Hbn.,* trojanus *Boisd.*) (11 b) inhabits
Brazil, Matto Grosso and Paraguay. In the ♂ the spots before the apex of the cell of the forewing are
small and the submarginal spots on the underside rather large; on the hindwing beneath the cell is entirely
or almost entirely yellow; the tail broad. The ♀ occurs only in one form: forewing with spot in the cell
and a large patch between the 1. and 2. median: tail spatulate, with rounded tip.

tasso. **P. tasso** *Stgr.* (11 a). ♂: band of the forewing abbreviated, the subapical part wanting. ♀ with
broad white band, which begins on the forewing at the 3. radial and extends to the hindmargin of the
hindwing; the cell of the forewing beneath with a few yellow streaks; the tail non-spatulate. — Only a
few old specimens known, which probably came from Brazil.

peleides. **P. peleides** *Esp.* Perhaps an artefact; only known from Jablonsky's figure; is it perhaps a West
Indian representative of *torquatus* not rediscovered? ♂: forewing with a yellow macular band of almost
uniform breadth, curved forward to the costa; hindwing with yellow submarginal spots, the last of the row
red, as well as one placed proximally to it at the hindmargin; tail spatulate.

Zagreus-Group.

The remaining Fluted-Papilios are powerfully built insects with strong neuration in the forewing. The frons is either quite black or bears a yellow mesial line, never a yellow lateral streak along the eye. In the mimetic *zagreus*-group the antennae are long, yellow, with thin club; the frons has a yellow mesial stripe, the breast is diagonally streaked with yellow, the abdomen is for the most part yellow, the costal margin of the forewing is not dentate, the cell of the forewing is broad and the hindwing is rounded, without a tail. The species resemble *Tithorea* species, but are much more powerfully built. The earlier stages are unknown. The ♀♀ are very rare in collections; they are similar to the ♂♂.

P. zagreus *Doubl.* (11 c). The spots of the forewing orange, the marginal ones yellow; hindwing *zagreus.* orange, a marginal band enclosing a yellow submarginal spot, a basal subcostal area, a patch in the extremity of the cell, as well as several spots on the disc, black. — Venezuela and Colombia, southwards to Bolivia, descending on the Amazon as far as Ega; varying individually, but not distinctly geographically.

P. ascolius. Hindwing without black spots in the cell and on the disc. Chiriqui to West Ecuador, occurring in Colombia together with the preceding species. Geographically and individually variable. — **zalates** *Godm. & Salv.* is the most northern form. The cell area of the forewing is dusted with black, the *zalates.* subapical cell-spot is narrow, the discal spots are short, the marginal area of the hindwing narrower than in the other forms and the hindwing beneath deeper orange. Republic of Panama, found in various localities. — **daguanus** *R. & J.* The cell-spot of the forewing as in *zalates,* the discal spots on the contrary as *daguanus.* in *ascolius,* the discal spot between the 1. and 2. radial much shorter than the one placed behind it; hindwing pale, much less orange than in *ascolius,* the black basal streak broad, entering the cell, behind this streak a large black spot on the disc. West Colombia, at the Rio Dagua. — **ascolius** *Fldr.* (11 c). The *ascolius.* ✓ basal area of the cell of the forewing always pure pale yellow, between the 3. radial and 1. median two spots touching the cell; cell of the hindwing and the adjoining parts of the disc orange. Magdalena Valley and Cordillera of Bogotá. — **rosenbergi** *Druce.* The subapical cell-spot of the forewing large, the discal *rosenbergi.* spot between the 1. and 2. radial usually small, sometimes absent, rarely large, the following discal spots on the whole larger than in the preceding forms, whilst the posterior submarginal spots are smaller; the hindwing mostly very pale, yet sometimes more orange than the palest specimens of *ascolius.* West Ecuador, found by Rosenberg at a height of 1000 to 3500 ft.

P. bachus. The orange area of the hindwing of the preceding species is here only represented by a narrow variable band; however, the veins are often more or less yellowish on the underside. The ♀ is not known. Colombia to Bolivia. Two subspecies. — **bachus** *Fldr.* (11 c). The yellow spots of the fore- *bachus.* ✓ wing above and beneath quite pale, only the proximal cell-spot and the posterior discal spots somewhat orange. Colombia; found by Dr. Bürger at the beginning of the rainy season in the Cordillera of Bogotá; rare in collections. — **chrysomelus** *R. & J.* The forewing orange above and beneath from the base to the *chrysomelus.* ✓ disc, at the costal margin more or less pale yellow. Peru and Bolivia, not rare. From Ecuador no specimen of *bachus* has become known to us. — be Baezai. Hep. Ecuador

Scamander-Group.

P. hellanichus, scamander, birchalli and *xanthopleura* belong to the *scamander*-group. The frons is black and the otherwise black palpus has a white dot. The costal margin of the forewing is feebly dentate, especially near the base, but the dentition only becomes distinct if the margin is denuded. Only the larva of *scamander* is known; when full-grown it is black-brown beneath, green elsewhere, and bears a transverse band before and behind on the 3. thoracic segment, as well as two diagonal bands on the abdomen, which are usually united on the back, forming an X-shaped mark. The young larva on the contrary is brown and has on the middle segment and on each of the posterior ones a large grey patch. The pupa is green or brown-grey; it is fastened low down on the stem, usually close to the ground. On Magnolia, Canella and Citrus.

P. hellanichus *Hew.* (11 d). The yellow spots on the upper surface of the wings are large. The *hellanichus.* insect reminds one superficially of *machaon,* with which, however, it is not closely allied. The markings of the under surface as well as the structure prove that *hellanichus* is the southern representative of *scamander.* The cell has also on the upper surface a yellow spot, which on the forewing is sometimes very small, on the hindwing always large. The spots of the discal band have almost all reddish tips. ♀ quite similar to the ♂. — Uruguay and the adjoining parts of Argentina and Brazil, especially in the neighbourhood of the river and on the islands in the estuary of the La Plata.

P. scamander. Cell of the forewing without spot, that of the hindwing sometimes with a small spot; a pale yellow curved discal band, broken up into spots, on both wings. ♂ and ♀ very similar. Larvae and pupae described above. Brazil, common in hilly country, though not everywhere. Three geographical forms, which completely intergrade. — **grayi** *Boisd.* The submarginal macular band of the forewing evenly *grayi.* curved, the discal band broadest posteriorly; the red discal spots on the under surface of the hindwing separated from the discal band. Bahia to Paraná. — **eurymander** *Hopff.* The first 2 or 3 submarginal *eurymander.*

spots of the forewing more proximal than the other spots of this row, the submarginal spots of the hindwing partly pale yellow; the basal area of the hindwing beneath pale, often partly yellowish, the red discal spots small or absent. Santa Catarina and the adjoining districts of Rio Grande do Sul. — *scamander.* **scamander** *Boisd.* (11 d). Discal band of the upper surface more yellow; under surface of the hindwing pale yellow, with black veins and without red discal spots. Abdomen laterally pale yellow. Rio Grande do Sul.

P. birchalli. ♂: body black, claspers usually with pale yellow spot. Forewing above with 2 rows of spots before the margin; the anterior spots of the proximal row more or less indistinct; hindwing with broad discal band and a row of submarginal spots; the markings for the most part greenish; tooth of the 3. radial only a little more projecting than the other marginal teeth. Beneath the forewing has a cell-spot, an oblique row of discal spots and a row of submarginal spots abbreviated anteriorly; on the hindwing is a discal and a submarginal row of red spots, the middle discal spots small, the last one large and yellowish white. In the ♀ the markings of the upperside are more bluish and the discal band of the hindwing is very broad. Panama and Colombia; according to Druce it occurs also in North Argentina, which appears to us doubtful. — *godmani.* **godmani** *R. & J.* The last spots of the discal band of the hindwing above indistinct and the band broader in the middle than the black marginal area. Panama: Chiriqui and Bugaba. — *birchalli.* **birchalli** *Hew.* (11 d). The discal band of the hindwing above narrower than in *godmani* and its two last spots distinct. Colombia: Magdalena and Cauca Valleys.

xanthopleura. **P. xanthopleura** *Godm. & Salv.* (12 c). Sides of the abdomen yellow; under surface of the hindwing without discal band, the red submarginal spots large. The ♀ in two forms: ♀-f. **xanthopleura** is similar to the ♂, whilst *diaphora.* ♀-f. **diaphora** *Stgr.* has a large pale yellow area on the upperside of the forewing. — Upper Amazon.

Homerus-Group.

All the following Fluted-Papilios are distinguished by a strongly dentate costal margin of the forewing in the ♂, which is weaker in the ♀. The black abdomen is never spotted, but the underside of it in some forms is yellowish olive-brown. The antennae are short and the frons is broad. Like the preceding species they are forest insects, which occur in the mountains, especially at medium heights.

P. victorinus. A Central American species, occurring from Mexico to Costa Rica. ♂: two rows of pale yellow spots on the upper surface between two rows of bluish grey spots, which are distinct especially on the hindwing. Hindwing beneath with a row of red, black-edged discal spots and a row of crescent-shaped submarginal spots; tooth of the 3. radial only very little prolonged. Larva green above, grey beneath, anteriorly with two transverse grey, spotted, dorsal bands; abdomen laterally grey, dorsally with two angle-shaped spots. Two broods. — *morelius.* **morelius** *R. & J.* Discal spots of the forewing small or absent, no cell-spot on the underside. West Mexico. — *victorinus.* **victorinus** *Doubl.* (11 d). ♂: discal row of the forewing consisting of at least 3 spots; usually a row of bluish grey postdiscal spots present; discal spots of the under surface of the hindwing larger than the submarginal spots. The ♀ in two forms: ♀-f. **victorinus** *Doubl.* (= helleri *Fldr.*) is similar to the ♂, but the spots of the upper surface, especially of the hindwing, are mostly larger; in *amphissus.* ♀-f. **amphissus** *Hopff.* the hindwing has a bluish or greenish discal band, much broadened posteriorly. East Mexico to Nicaragua. — *vulneratus.* **vulneratus** *Btlr.* The discal spots of the upper surface of both wings larger than in the two preceding subspecies; hindwing without bluish spots distally to the discal row. Costa Rica, only one ♂ known (in coll. F. Ducane Godman).

cephalus. **P. cephalus** *Godm. & Salv.* ♂: tailed, two rows of spots on the upperside of the forewing, the submarginal row uniformly curved. Underside of the hindwing with bluish crescents distally to the discal spots. — Chiriqui, one ♂ in coll. Staudinger; perhaps only a tailed specimen of *P. cleotas archytas* (the genitalia should be compared!).

P. cleotas. Forewing above with a submarginal row of spots, curving in front towards the costa, and an oblique discal row of larger patches posterior to the lower angle of the cell; hindwing with discal band and submarginal spots. Under surface of the hindwing with a row of red discal spots, which are proximally more or less yellow, the last spot always pale yellow. The ♀ in two forms, one similar to the ♂, the other with broad bluish or greenish band, diffuse proximally. Distributed from Costa Rica to South Brazil, but not known from Bolivia to Ecuador, nor from the Guianas, the Orinoco or the Amazon, being replaced in these districts by *P. aristeus.* — *archytas.* **archytas** *Hopff.* (♂ = laetitia *Btlr.*). ♂: the cell-spot and the middle discal spots of the forewing smaller than in the next form. In the dimorphic ♀, ♀-f. **archytas** *Hopff.* is similar to the ♂, whilst *panthias.* ♀-f. **panthias** *R. & J.* has bluish or greenish markings on the upperside. Costa Rica; Panama; Brava Island on the west coast of Panama. — *phaeton.* **phaeton** *Lucas* (= phaëton *Doubl.*) (13 a) inhabits Colombia. ♂: the markings on the upper surface very variable. The cell-spot of the forewing usually more oblique than in *archytas*, sometimes absent (*clearchus.* ab. **clearchus** *Fldr.*), and the anterior submarginal spots larger than the posterior ones; tail distinct; harpe dentate at the dorsal margin, with a strong apical hook curved inwards, the dorsal prong of the fork short.

syndemis. *coroebus.* *philocleon.* *dione.* *cleotas.* *adaea.*

The ♀-f. **phaeton** *Luc.* is similar to the ♂. The second form, ♀-f. **syndemis** *nov.*, has a broad bluish band on the hindwing; the discal spots of the upper surface of the forewing are bluish, the middle ones only indicated, those of the under surface are only represented by a few indistinct little spots; hindwing above with distally convex bluish crescents outside of the discal band; discal band of the underside reduced, consisting of small, black-edged red spots; tail long; one specimen, from Bogotá, in the Tring Museum. — **coroebus** *Fldr.* ♂: the cell-spot of the upper surface of the forewing is absent, or it is more or less distinct but diffuse (ab. **philocleon** *Fldr.*); the discal spot between the 3. radial and 1. median usually more proximal than in *phaeton*, the submarginal spots smaller; on the hindwing the discal band broken up into spots; the 3. and 4. spots reduced; the dentition of the harpe more regular and the dorsal process longer than in *phaeton*. The form of the ♀ similar to the ♂ is ♀-f. **dione** *R. & J.*; in the second form, the ♀-f. **coroebus** *Fldr.*, the markings of the upperside are bluish and the discal band on the upperside of the hindwing is strongly widened posteriorly, also the discal spots of the hindwing beneath are reduced. East side of the Cordillera of Bogotá; Northern Venezuela. — **cleotas** *Gray* (= lycortas *Fldr.*). ♂: discal band of the upper surface of the forewing more oblique than in the other subspecies; a row of nebulous bluish grey spots between the cell and the submarginal spots; harpe terminating in a two-pronged fork, whose prongs are straight and approximately of equal length. In the ♀ the middle vaginal lobe is short, the side one narrow and pointed. The two colour varieties are: ♀-f. **cleotas** *Gray*, similar to the ♂, and ♀-f. **adaea** *R. & J.*, in which both wings above have a discal and a postdiscal row of bluish patches. Brazil, from the province of Rio de Janeiro (Petropolis) to Rio Grande do Sul; according to Boisduval also in Uruguay, but the statement appears to us doubtful.

aristeus. *ctesiades.* *desmias.* *bitias.* *therapes.* *vilcanotus.* *coelebs.* *lenaeus.*

P. aristeus. Cell-spot of the forewing very large, the discal spot between the 3. radial and 2. median very long, forming with the cell-spot a large pale yellow area. The ♀ resembles the ♂, or the markings of the upperside are bluish and the discal band of the hindwing is broad; both forms on the underside with large, more or less distinct pale yellow cell-patch. South America and Panama. — **aristeus** *Cr.* (♂ = bari *Oberth.*). ♂: the cell-spot of the forewing rhombiform, the discal spot placed before the 1. radial long, the next extending almost to the submarginal row, the third small and indistinct; discal band of the hindwing above only distinct posteriorly. Only one form of the ♀ known (Cramer's figure): forewing with long, indistinct grey-blue longitudinal streaks and hindwing with very broad bluish band. French and Dutch Guiana: one ♂ in coll. Charles Oberthür. — **ctesiades** *R. & J.* Cell-patch of the forewing longish, nearly reaching to the base, two large, long discal spots, as well as a long triangular spot behind the 2. median and the cell; discal spots of the upper surface of the hindwing small, red. Upper Amazon. — **desmias** *R. & J.* Cell-spot shorter and narrower than in *ctesiades*, a small spot in the apex of the cell, a second distally to it, two large discal spots and behind the base of the 2. median a spot which is smaller than in *ctesiades*; hindwing as in *bitias*. Province of São Paulo, Brazil; one ♂ in coll. F. Ducane Godman. — **bitias** *Godt.* (= eurotas *Fldr.*; ctesias *Fldr.*; lacordairei *Borre*) (13 a). ♂: cell-spot of the forewing more transverse than in the preceding subspecies; discal band of the hindwing never complete, only indicated, or interrupted in the middle. ♀ dichromatic: ♀-f. **bitias** *Godt.* resembles the ♂; ♀-f. **therapes** *R. & J.* is similar to the ♀-f. *aristeus*, but the bluish streaks of the forewing are shorter and the band of the hindwing is narrower, also the cell-spot of the under surface of the forewing is partly pale yellow. Common on the east side of the Andes of Ecuador and Peru; upper course of the Rio Negro; Bogotá and Chiriqui; the last two localities appear to us doubtful. — **vilcanotus** *R. & J.* Cell-spot of the hindwing and costal spot of the hindwing brownish yellow. Vilcanota, South Peru. — **coelebs** *R. & J.* Cell-spot of the forewing narrow, transverse, the discal spot between the 1. and 2. median narrow, triangular, not reaching to the cell, the submarginal spots large, indistinct grey-blue spots between them and the cell; hindwing with broad pale yellow discal band, submarginal spots large, pale yellow. On the underside the cell-spot of the forewing smaller than in *bitias* and *lenaeus*. North-west Peru and Northern Central Peru (Tambillo, Chachapoyas), as well as South-west Ecuador. — **lenaeus** *Doubl.* Cell-spot of the forewing transverse, not so oblique as in *bitias*, a discal spot before the 3. radial, the discal spot behind the 1. median proximally narrowed and abbreviated; discal band of the hindwing complete, or narrowly interrupted. Rather common in South-East Peru and East Bolivia, the ♀ not known or at least not described.

judicaël.

P. judicaël *Oberth.* (13 b). ♂: cell-spot of the forewing narrow, transverse and like the 4 discal spots brown-yellow; hindwing strongly dentate, tailed. Cell-spot of the under surface of the forewing large, brown-yellow, the submarginal spots small; discal band of the hindwing dirty white, orange-red distally. — Only one ♂ in coll. Oberthür, from Huambas, Amazonas, North Peru.

abderus.

P. garamas. ♂: both wings on the upperside with a pale yellow discal band and a row of submarginal spots; margin of the hindwing strongly dentate, with spatulate tail; discal band of the underside of the hindwing brownish orange distally. The ♀ similar to the ♂, or the yellow discal band is absent and the hindwing has very strongly curved, more or less reddish, discal crescents. Central America. — **abderus** *Hopff.* (12 b). ♂: forewing with 4 submarginal spots, often with indication of a fifth, the discal band of the hindwing enters the cell, the submarginal spots are absent; the orange-red teeth of the discal band of the hindwing beneath of equal breadth on both sides of the veins, shorter than in the following sub-

species. One form of the ♀ similar to the ♂. but the submarginal spots of the upper surface of the hindwing often indicated and the teeth of the discal band reddish-yellow also above: ♀-f. **abderus** *Hopff.;* in
amerias. the second form, ♀-f. **amerias** *R. & J.* (12 b), the forewing has besides the submarginal spots a row of
brown-grey nebulous discal spots, the red crescents of the hindwing very large. Vera Cruz in East
garamas. Mexico. — **garamas** *Hbn.* (♂ = asclepius *Hbn.;* cincinnatus *Boisd.;* concinnatus *Gray*). ♂: submarginal
spots of the upper surface of the hindwing distinct; the yellow-red teeth of the discal band of the hindwing beneath less long than in *abderus*, the part of each tooth placed before the vein shorter than that
amisa. placed behind it. Forewing beneath without nebulous brown-grey discal spots. The ♀-f. **amisa** *R. & J.* is
similar to the ♂, being distinguished in colour from ♀-f. *abderus* chiefly by the distinct submarginal spots of the upperside of the hindwing; ♀-f. **garamas** *Hbn.* is similar to the ♀-f. *amerias,* but the nebulous discal spots of the upper surface of the forewing are crescent-shaped, the discal crescents of the hindwing are shorter, the blue spots larger and the submarginal spots thinner than in ♀-f. *amerias.* Both sexes larger
baroni. than the East Mexican subspecies. West Mexico: Guadalajara, Cuernavaca, Oaxaca. — **baroni** *R. & J.*
Forewing with 5 submarginal spots, the 5. spot much nearer to the margin than the 4.; submarginal spots of the hindwing indicated, the discal band entering the cell; on the under surface of the forewing the submarginal line interrupted at the 2. radial, the posterior part of the line being much nearer the margin than the broader anterior part. The dorsal prong of the fork of the harpe much shorter than the ventral prong.
electryon. Guerrero, 1 ♂ in the Tring Museum. — **electryon** *Bates.* ♂: the cell-spot of the discal band of the fore-
wing narrowed towards the costa; no submarginal spots on the upperside of the hindwing. Beneath the band of the forewing is strongly dentate on the disc and there are no nebulous spots present distally to this band; upper prong of the harpe curved downwards. The ♀ not known. Guatemala and (?) Honduras. —
syedra. **syedra** *Godm. & Salv.* Cell-spot of the forewing of equal width anteriorly and posteriorly; 5—7 submarginal
spots on the forewing, the 3. the largest; discal band of the hindwing more strongly dentate than in *electryon*, large blue spots distally to it; no submarginal spots. Beneath the apical area of the forewing and the basal area of the hindwing pale brown (as in *baroni*), the yellow-red margin of the discal band of the hindwing more deeply coloured than in *electryon* and broader between the veins. The ♀ similar to the ♂; the discal band of the upperside of the hindwing partly yellow-red distally. The upper prong of the harpe of the ♂ reduced to a tooth, the ventral prong long. Costa Rica and Chiriqui. A large form.

homerus. **P. homerus** *F.* (12 a). Similar to the preceding species; the discal band of the forewing continued round the apex of the cell to the costal margin, the cell-spot sometimes isolated; discal band of the hindwing beneath non-dentate, brown, its proximal margin yellowish white, large black spots proximally to the red submarginal spots. — Larva on Thespesea, green above, brown beneath, marked similarly to that of *scamander.* Thoracic horn of the pupa short. The insect is apparently not rare at certain places in the interior of Jamaica, but is difficult to catch, as it flies at a considerable height above the ground. According to Aaron occurs also in St. Domingo.

P. warscewiczi. Abdomen woolly beneath, brownish yellow like the breast. Forewing without cell-spot, 2 almost parallel rows of spots between cell and margin; hindwing with discal band and submarginal spots, tailed. Beneath the apical area of the forewing and the hindwing are pale brown (all that is visible when the butterfly holds the wings closed together); cell of the forewing with white or yellow spot; hindwing with dentate discal band. The ♀ not known to us. Ecuador to Bolivia; a mountain species. —
jelskii. **jelskii** *Oberth.* Discal spots of the forewing and discal band of the hindwing not sharply defined. Discal
spots of the underside of the forewing large and brown, the marginal area much widened before the middle; the brown postdiscal spot between the 3. radial and 1. median larger than in the other forms, the submarginal spot between the 1. and 2. median orange in the middle. The two prongs of the harpe (♂) straight. the upper one much longer than the lower. South Ecuador, North and North-West Peru. —
mercedes. **mercedes** *R. & J.* Discal spots of the forewing on the whole larger than in *jelskii,* the blue spots of the
hindwing broader, the brown marginal area of the underside of the hindwing narrower before the middle, submarginal spot between the 1. and 2. median of the hindwing not orange beneath. The two prongs of the harpe (♂) straight, generally of equal length or the lower one somewhat shorter than the upper. East
warscewiczi. Peru: Huánuco and Junin. — **warscewiczi** *Hopff.* (= soratensis *Godm. & Salv.*) (12 b). Discal spots of the
forewing much smaller than the submarginal spots; discal band of the hindwing broken up into spots, often only indicated, on the under surface often entering the cell and like the submarginal spots brown. The upper prong of the harpe (♂) strongly curved. South-East Peru and Bolivia.

P. cacicus. Forewing with interrupted discal band, a variable cell-spot, rarely absent, a row of bluish grey postdiscal spots and a row of yellowish white submarginal ones, the last or the last few of the submarginal spots more or less orange; on the hindwing a yellowish white median band, a postdiscal row of blue spots and a submarginal row of yellowish white ones. The ♀ occurs in 3 forms. Venezuela, Colombia,
cacicus. Ecuador and East Peru. — **cacicus** *Luc.* (12 c). ♂: the cell-spot of the forewing, if present, more or less
zaddachi. transverse. The 3 forms of the ♀ are: ♀-f. **cacicus** *Luc.*, similar to the ♂; ♀-f. **zaddachi** *Dewitz,* discal
band of the forewing not interrupted and like the large cell-spot brownish orange, hindwing without discal

band on the upper surface: ♀-f. **nais** *R. & J.* like ♀-f. *zaddachi*, but the markings of the forewing white. *nais.* Mérida in Venezuela, Colombia and Ecuador. — **inca** *R. & J.* The cell-spot of the forewing much more *inca.* oblique than in the preceding subspecies, forming with the median vein an acute angle; discal band of the hindwing convex distally, posteriorly strongly narrowed; the tail narrow, non-spatulate. Chanchamayo.

P. euterpinus *Godm. & Salv.* (12 c). Tailless; markings of the upper surface yellowish red. The ♀ *euterpinus.* similar to the ♂, somewhat paler and larger. — From West Colombia to North Peru. The butterfly is an enlarged copy of the Pierid genus *Pereute.* The insect is usually considered as nearly allied to *zagreus*, but according to the structure and markings it belongs to the *homerus*-group near to *cacicus.* The butterfly is still very rare in collections.

C. Kite-Swallowtails.

Antenna with more distinct club than in the Aristolochia- and Fluted-Papilios, scaled on the upperside, but the scales, like those of the tibiae and tarsi, easily fall off, the fine sensory hairs are distributed as in the Fluted-Papilios. The dorsal spines of the tarsi are separated from the ventral spines by a spineless, impressed interspace. The wings in most species are thinly scaled, the scales often modified to fine hairs; the blue or green bands of many species of the Eastern Hemisphere are only covered with fine hairs on the underside, the pigment lying in the membrane of the wing, in the American Kite-Papilios also the membrane of the wing is green at least at the base, with the exception of the dark mimetic species. In a great number of these Papilios the 1. or 1. and 2. subcostals of the forewing are distally fused with the costa; the cell of the hindwing is mostly narrow and its anterior margin incurved between the subcostal and the 1. radial. The abdominal margin of the hindwing in the ♂ is widened and usually bent over; in this fold lies a scent-organ, which is rarely absent; the scent-scales are sometimes very different in nearly allied species; but the organ also varies geographically. The apical margin of the 8. abdominal dorsal segment of the ♂, which becomes visible after the removal of the genitalia, is smoothly scaled, the small scales standing erect; except in the Kite-Swallowtails this character is found in no American Papilio; the 10. dorsal segment of the ♂♂ of the American Kite-Papilios is likewise characteristic; this anal process is divided into three parts by two narrow incisions, only in *P. celadon* the process is simple in consequence of the absence of the two side parts. — Unfortunately the larva of only very few species is known. The 3. thoracic segment is swollen, as in the larvae of the Fluted-Papilios; the thoracic segments and the anal segment often bear dorsally short thorns, also traces of tubercles are usually found on the other segments; the pattern consists of small spots, transverse lines or short longitudinal streaks, eye-spots and oblique bands are wanting. — The pupa is shorter than in the other Papilios, the head and thorax are not at all or only weakly curved upwards, the thoracic horn is long and four-sided, the lateral carina forming the prolongation of the raised edge of the case of the hindwing; the abdomen has two dorsal carinae, which converge in front and behind; the anal segment is longer than broad. — The butterflies are in great part longwinged insects with triangular hindwing. The long-tailed forms with the wings spread out remind one of a paper kite. The Kite-Papilios are nimble fliers. Although the mimetic forms usually imitate the sluggish flight of their models (Aristolochia-Papilios, Pierids, Danaids etc.), yet they show great adroitness and speed when they take to flight in alarm. The ♂♂ often congregate in great crowds in moist places, at the edge of rivers, lakes, puddles etc., where they drink with a quivering motion of the half opened wings; they also visit flowers. The Kite-Papilios are insects of the open, sunny part of the wooded districts, of the clearings in the forests and their edges. Naturally this refers more to the ♂♂ than to the ♀♀; the latter, of many species at least, are only rarely taken by the collector, because they have different habits, remaining in the thickets and woods and not joining the crowds of ♂♂ drinking at the water; the ♀♀ of many very common forms are not yet known at all. The Kite-Papilios do not extend so far north as the Fluted-Papilios.

Lysithous-Group.

The species of the *lythisous*-group are characterised by red basal spots on the under surface of the wings. Haase rightly recognised these forms, so similar in appearance to the Aristolochia-Papilios, as belonging to the Kite-Papilios; all other authors have erroneously classified them with the Aristolochia- and Fluted-Papilios. The bright-coloured larvae are striped longitudinally and bear a V-shaped saddle-spot before the middle; the thorax is spotted. The pupa is short; the abdomen elarged in the middle. The species are found from Mexico to Argentina.

P. pausani~~u~~as. A copy of *Heliconius clytia L.* According to Bates the butterfly certainly has the sailing and circling flight of the Heliconians, yet is not, like the Heliconians, a species of the forest shades, bit is found on the muddy banks of rivers and lakes or flies round the tops of high trees. Wings above green-blue, with large pale yellow area on the forewing, hindwing short, often truncate. The scent-organ is wanting in the ♂. The ♀ resembles the ♂. From Costa Rica to Northern Brazil (Goyaz), — **prasinus** *prasinus.* *R. & J.* Wings above strongly metallic; discal spots of the forewing longer than in the following form, the white submarginal spots of the hindwing very small, the anterior ones only indicated, the red basal spots of the underside smaller than in the remaining subspecies. Costa Rica. — **cleombrotus** *Streck.* from *cleombrotus.*

West Colombia and probably Panama; as in *prasinus* the forewing without pale apical area; costal area of
the upperside of the forewing almost black, in *prasinus* almost as metallic green as the disc; underside of
pausanias. the hindwing without pale (yellow-green or reddish) streaks between the veins. — **pausanias** *Hew.*
(= hermolaus *Guen.*) (12 a). Apex of the forewing with large grey area; under surface of the hindwing
between the veins with pale streaks, extending to the submarginal spots. Central Colombia to Bolivia,
Orinoco, the Amazons and Goyaz.

microdamas. **P. microdamas** *Burm.* (12 a). A yellowish band from the costal margin of the forewing to the
anal angle of the hindwing; under surface without red basal spots on the forewing, with 4 spots on the
hindwing. ♀ similar to the ♂. — Paraguay, Northern Argentina, Caraça in Brazil; a lowland species.

P. protodamas *Godt.* (= hyperion *Hbn.*). Forewing with yellowish area consisting of 3 large patches,
or with 1 or 2 rows of spots; hindwing with yellowish grey-blue band; forewing beneath without basal
spots, hindwing with 3. The scent-organ of the ♂ wanting. Larva black, with grey and white, partly
yellow stripes, the thorax dotted with white and yellow. Thoracic horn of the pupa rather thin. Two
protodamas. individual forms of the butterfly are known: in f. **protodamas** *Godt.* the forewing has two rows of spots,
choridamas. the upper ones of which are more or less merged together; in f. **choridamas** *Boisd.* (13 b) the forewing
has a very large cell-spot and two discal patches, also large. — The butterfly is entirely Brazilian; it is
found from Minas Geraës to Rio Grande do Sul; but the f. *choridamas* does not appear to extend so far
south, being only known to us from the provinces of Rio de Janeiro and Minas Geraës.

P. phaon *Boisd.* Similar to the preceding species; the spots on thorax and abdomen red, the
posterior abdominal segments with red lateral spots. Very variable. Spots on the upper surface of the
forewing bluish yellow-grey or purer white-yellow; discal band of the hindwing grey-blue, rarely red.
Under surface without distinct cell-streaks, forewing without basal spots, hindwing with 3. Scent-scales
present in the ♂. Mexico to West Ecuador and Venezuela. The following forms have been described as
xenarchus. species: ab. loc. **xenarchus** *Hew.*, hindwing with broad red band; ab. loc. **eridamas** *Reak.*, the red band of
eridamas. the hindwing narrow, the spots composing it separated; these two forms only known from East and South
phaon. Mexico; ab. **phaon** *Boisd.* (13 b), forewing with submarginal spots, but without discal spots, the band of
ulopos. the hindwing just entering the apex of the cell; ab. **ulopos** *Gray* (= immarginatus *Oberth*), forewing without
spots or with only indications of them, band of the hindwing broad, entering more or less far into the cell;
therodamas. ab. **therodamas** *Fldr.*, with discal and submarginal spots on the forewing and narrow, slanting band on the
metaphaon. hindwing, separated from the cell; ab. **metaphaon** *Butl.* has on the hindwing a very large blue-green discal
pharax. area, occupying a good part of the cell; in ab. **pharax** *Godm. & Salv.* the hindwing has a red anal spot
and the discal band is remote from the cell. All these forms are connected with one another by transitions.

P. euryleon. The spots of the breast and abdomen red, the posterior abdominal segments with red
lateral spots. Forewing above with yellowish grey area before the hindmargin, hindwing with red discal
area or band. Beneath the forewing without red basal spot, the hindwing with three, but the spot placed
in the cell commonly only indicated or quite absent, the discal band smaller than above, pale red. ♀ similar
to the ♂ or different from it; in the latter case forewing with cell-spot and two discal bands, all white,
recalling *pausanius* and *protodamas* f. *choridamas.* Scent-organ of the ♂ usually present. Costa Rica to
clusoculis. Ecuador. — **clusoculis** *Butl.* (13 c). Discal area of the forewing white-grey; the red band of the hindwing
broad, always entering the cell. ♀ similar to the ♂, the red band of the hindwing somewhat
pithonius. broader. Costa Rica; Chiriqui. — **pithonius** *R. & J.* ♂: forewing with small or large grey spot; hindwing
with 3—5 red discal spots, the red submarginal spots of the under surface of the hindwing very
small or only indicated. ♀ with large cell-spot on the forewing and 2 large discal spots. West Colombia
euryleon. and Cauca Valley. — **euryleon** *Hew.* (13 c). ♂: hindwing above mostly with 4 spots placed close to the
cell and two small, less distinct spots before the abdominal margin; the discal spots on the underside pale
red. ♀: the cell-spot of the forewing narrowed anteriorly, the band of the hindwing entering the cell.
haenschi. Magdalena Valley, Cordillera of Bogotá. — **haenschi** *R. & J.* ♂: area of the forewing lighter grey than
in *euryleon,* composed of two spots, the anterior spot projecting distally; hindwing with small cell-spot, which
is rarely absent, and 3—5 spots placed close to the cell; beneath the forewing has a large white spot
between the 1. and 2. median, a grey spot behind it; hindwing with 3 pale red spots, the 1. and 2. touching
the cell, a 4. spot often indicated. ♀: the cell-patch of the forewing does not extend across the cell, band
of the hindwing running from the 1. radial to the abdominal margin, entering the cell, behind the cell
proximally whitish, as in the ♀ of the Aristolochia-Papilio *P. iphidamas calogyna.* ♂ with scent-organ. In
anatmus. Western Ecuador. — **anatmus** *R. & J.* ♂: the grey area of the forewing extending from the hindmargin
costad as far as the 2. median or beyond, often a grey streak in the cell; hindwing with 3 red spots,
separated from the cell, often only the 3. spot distinct; beneath the forewing without white spot and the
discal spots of the hindwing usually grey. ♀ not known. Scent-organ absent in the ♂. East Ecuador.

hipparchus. **P. hipparchus** *Stgr.* (13 d). ♂: forewing with a row of grey submarginal spots; hindwing with pale
reddish discal band, extending from the 1. radial to the abdominal margin. ♀ not known. Cauca Valley,
Colombia.

P. harmodius. ♂ and ♀ different. The spots on head, thorax and coxae yellowish white. ♂: forewing somewhat transparent apically, before the hindmargin a white area of variable extent, but never reaching to the 3. radial; hindwing with a band of red discal spots. Beneath the cell of both wings streaked with black, forewing with red costal basal spot, hindwing with 3 basal spots. In the ♀ the hindwing similar to the ♂, or the macular band white or yellow; the forewing either without spots, or with white cell-patch and two large discal patches. Colombia to Bolivia; a species of the Andes, very common in the eastern valleys of Ecuador, Peru and Bolivia. Larva not known. — *isus.* **isus** *Oberth.* (= aristogiton *Stgr.*). ♂: the white area of the forewing large, extending from the hindmargin to the 2. median or beyond; discal band composed of 6 or 7 white-centred spots. ♀ not known. — Cauca Valley, Colombia. — *halex.* **halex** *R. & J.* Forewing as in the preceding subspecies; hindwing with 5 red discal spots. ♀ on the forewing with white area from the 3. radial to the 2. median and a small cell-spot; hindwing with 5 pale red discal spots. Colombia; in Bogotá-collections. — *xeniades.* **xeniades** *Hew.* ♂: the white spot of the forewing very variable, always extending to the hindmargin of the wing, usually excised at the costal side, always small on the underside; hindwing with 3—5 discal spots, which are red above, rarely whitish in the middle, and beneath always reddish white with red distal margin. ♀: dichromatic: ♀-f. *androna.* **androna** *R. & J.* (13 d) with quite small grey scaling in and behind the cell of the forewing and 5 red discal spots on the hindwing; the second form, ♀-f. *virginia.* **virginia** *Kirby,* is very similar to the ♀ of *P. erlaces lacydes,* forewing with large white cell-spot and two large discal patches, band of the hindwing white with faint red margins. *Xeniades* occurs in Ecuador and West Colombia. — *imaus.* **imaus** *R. & J.* (14 a). Not constantly different from the ♂ of the following subspecies, forewing above mostly with white streak at the hindmargin, beneath the white spot is usually smaller than in *harmodius Doubl.* ♀ as the ♀-f. *virginia,* but the cell-spot narrowed anteriorly, the anterior discal spot reduced and the band of the hindwing yellow above, almost white beneath. Eastern slopes of the Andes of North and Central Peru. — *harmodius.* **harmodius** *Doubl.* (13 c). ♂: forewing above and beneath always with large white spot, not quite reaching to the hindmargin. ♀: the white cell-spot does not extend across the cell; three discal spots, the 1. small, the 2. as long as the 3.; hindwing with red discal spots, larger than in the ♂. South-east Peru (from Chanchamayo southwards) and Bolivia. The ♂♂ common, of the ♀ only 1 specimen known (in coll. CHARLES OBERTHÜR).

trapeza. **P. trapeza** *R. & J.* (13 c). Forewing narrower in the middle than in *harmodius,* the hindmargin shorter, a white spot at the hindmargin, not extending to the 2. median; hindwing triangular, sharply dentate, with 2 to 4 red spots from the hindmargin forwards, the posterior spot the largest. Beneath the white hindmarginal spot of the forewing is longer than in all the forms of *harmodius.* ♀ unknown. — East Ecuador and North-East Peru.

xynias. **P. xynias** *Hew.* (13 c). Forewing with large pale green area at the hindmargin; hindwing acutely dentate, with short, narrow tail and a few red discal spots posteriorly. Beneath the forewing has a white, very faintly green hindmarginal spot, which is smaller than the spot on the upper surface. No scent-scales. ♀ not known. — Eastern slopes of the Andes of Bolivia and Peru.

P. ariarathes. Another widely distributed and very variable species, which has more spiny tibiae and a narrower cell in the hindwing than the allied species. Spots on head and breast yellowish grey. Forewing beneath with 2 red basal spots, the hindwing with 3. In the ♂ the forewing usually with grey-white or yellowish band or area from the hindmargin forwards; hindwing with red discal spots, of which often only the one placed at the abdominal margin is distinct. ♀ almost always with white discal spots on the forewing. Scent-scales of the ♂ present. Larva unknown. Colombia to Bolivia, distributed eastwards to Pará and Goyaz. The butterfly is individually and geographically variable; the ♀♀ resemble the ♀♀ of Aristolochia-Papilios and adopt in the different districts their likewise variable dress. The forms all intergrade, We differentiate 6 geographical forms, whether correctly must be ascertained by further ivestigations based on a larger material than we have seen. The butterfly according to Bates flies with great rapidity in sunny places near plantations; it is no rarity, but is not taken in great numbers. — *ariarathes.* **ariarathes** *Esp.* (= acestes *Boisd.*) (14 a). ♂: forewing with large white spot from the hindmargin to the 2. median, almost as large beneath as above; on the hindwing 4 to 6 separated discal spots, placed separate from one another and from the cell. ♀ with 5 or 6 red discal spots on the hindwing, three long, extending nearly or quite to the cell; in ♀-f. **ariarathes** *Esp.* the forewing has 1 to 3 white discal spots and often a narrow cell-spot; in ♀-f. *eumelea.* **eumelea** *R. & J.* these white spots are only indicated. French and Dutch Guiana. — *menes.* **menes** *R. & J.* ♂: forewing with white band, extending from the hindmargin to the 1. or 2. median, the posterior spot often small or absent, the spot before the 2. median 4—6 mm. long, also always present beneath; hindwing with 3 or 4 red spots midway between cell and margin. ♀ with large discal spot from the 3. radial to the 1. median and a smaller one behind it, sometimes also with indication of spots before the 3. radial and in the cell; 5 or 6 discal spots on the hindwing, remote from the cell. British Guiana. — *evagoras.* **evagoras** *Gray* (13 d). ♂: forewing with narrow band, placed at the 3. radial about midway between cell and outer margin or nearer to the cell; beneath the band is replaced by 2 or 3 distinct spots; discal spot of the hindwing partly near to the cell, the band more curved than in the other forms. ♀ with 3 white or yellowish discal spots and a rather large cell-spot on the forewing; the apical half or two-thirds of the cell of the hindwing red, as are also 6 large discal spots, abdominal margin at least partly red. Venezuela. — *metagenes.* **metagenes** *R. & J.* ♂: forewing usually with a band reaching from the hindmargin to beyond the 3 radial, merely indicated on the underside; hindwing with 4 or 5 spots placed separate from the cell. ♀: forewing with the long white discal band which is also peculiar to the Aristolochia-Papilios *P. anchises thelios* and *P. aglaope,* this band consists of two large spots with a smaller one placed before and behind them; hindwing *gayi.* with 6 red spots, 3 of which are contiguous to the cell. Pará. — **gayi** *Lucas.* ♂ and ♀ very variable; *anargus.* 3 principal forms: f. **anargus** *R. & J.* (13 d), forewing without band or spots; f. **cyamon** *Gray* (= charoba *cyamon.* *Kirby*) (13 d), ♂ with narrow band on the forewing, on the whole somewhat more distally placed than in the ♂ of *evagoras,* ♀ with narrow, indistinct band on the forewing, with cell-spot on the hindwing, the spots on the hindwing sometimes yellowish white; in f. **gayi** *Luc.* (= aristagoras *Fldr.;* arianus *Staud.*) the ♂ has on the forewing a more or less square hindmarginal spot, whilst the ♀ has 1 or 2 large discal spots, usually also a small third spot and often a cell-spot in addition. These different forms are not separated geographically. *leuctra.* Distributed from Colombia to Bolivia and the Amazon downwards to Manáos. — **leuctra** *R. & J.* ♂: forewing with a pure white area, of almost even width, reaching from the hindmargin to the 1. median, above about 6 mm. broad and on the underside only a trifle narrower; hindwing with 6 long red discal spots, the 3 middle ones contiguous to the cell. Goyaz, Brazil.

ilus. **P. ilus** *F.* (= hostilius *Fldr.;* guaco *Stgr.* (14 a). ♂♀: under surface without red basal spots on the forewing, with 4 red basal spots on the hindwing. Forewing with or without a patch in the extremity of the cell, with 2 or 3 white spots on the disc, the posterior one, placed behind the 3. median, the largest. North Venezuela, Northern Colombia, Panama; rare in collections.

P. branchus *Doubl.* Head and breast with red dots, a spot on the forecoxa white. Wings opaque; forewing with or without white spots; hindwing with broad red discal band. Under surface without red *branchus.* basal spots on the forewing, with 4 such spots on the hindwing. Sexes similar. In the f. **branchus** *Doubl.* *belephantes.* (14 b) the forewing has a variable white central area, which is absent from f. **belephantes** *Godm. & Salv.* — Mexico to Costa Rica.

belesis. **P. belesis** *Bates* (14 b). Similar to the preceding species, hindwing with a band of 6 to 7 red spots, parallel to the margin, placed nearer to the margin than to the cell. Forewing in f. **belesis** *Bates* without *hephaestion.* white spot, in f. **hephaestion** *Fldr.* with a spot between the 2. and 3. radial and sometimes the indication of a second spot behind the 3. radial. — Mexico to Nicaragua.

P. thymbraeus. The small spots on head and breast grey-yellow, often slightly reddish. Upperside of the wings slightly but yet distinctly metallic blue or green; forewing without markings, but with white fringes; hindwing with a slender tail and 1 or 2 rows of spots between cell and margin. Under surface with red costal basal spot on the forewing and 4 basal spots on the hindwing. Larva on Chirimoya; the thorax dotted with blue and yellow; striped with white and black from the 4. segment backwards, the white stripes with small blue and yellow spots, the sides blue, from the 5. segment dotted with yellow. Pupa green, as in the allied species, appearing constricted at the base of the abdomen. The butterfly flies in the open country the whole year through, and is rather common at a height of 500 to 1560 m. — *thymbraeus.* **thymbraeus** *Boisd.* (14 b) is distributed from East Mexico to Honduras. The hindwing in ♂ and ♀ has *aconophos.* 2 rows of red spots. — In **aconophos** *Gray* the hindwing has only one row of red spots, the discal row is absent. Central and West Mexico.

P. lysithous. A polychromatic species. The different individual forms with one exception were originally described as species and have been regarded as such until recently. The forms are connected with one another by intergradations; moreover, the specific identity of 3 of the varieties *(pomponius, rurik, lysithous)* has been proved by breeding. Underside of the forewing with 2 red basal spots, hindwing with 3; all the forms with a tail. Larva on Anona, resting by day on the upperside of a leaf at the middle vein, on the lower branches and root-shoots, near Petropolis all the year round, except in June and July (middle of the dry season); black with yellow longitudinal stripes and white-yellow saddle-spot. The pupa as in the allied species green with yellow lateral streak. Brazil and Eastern Paraguay. The principal *platydesma.* forms, which do not everywhere occur together, are the following: f. **platydesma** *R. & J.* (= harrisianus *auct.*) (14 b), the white band of the forewing very broad, continued over the cell to the costal margin; *harrisianus.* f. **harrisianus** *Swains.* (= claudius *Boisd.;* athous *Fldr.*), the white band of the forewing broad posteriorly, strongly narrowed anteriorly, not entering the cell, the part from the lower angle of the cell to the costal margin narrow or absent, as in the preceding form the posterior submarginal spots of the hindwing large; *oedipus.* f. **oedipus** *Fldr.* (= sebastianus *Oberth.*) (14 a), forewing with double spot from the 1. median backwards, *lysithous.* hindwing without white band, the 4 posterior submarginal spots large; f. **lysithous** *Hbn.* (14 a), band of the *brevifasciatus.* forewing narrow, often abbreviated (ab. **brevifasciatus** *Weym.*), hindwing with small submarginal spots, the *extendatus.* discal band usually only extending to the 1. median, sometimes longer and more distal (ab. **extendatus** *rurik.* *Weym.*); f. **rurik** *Eschsch.* (= rurikia *id.* in tab., laius *Boisd.*), band of the forewing abbreviated, hindwing *pomponius.* without white band, the 4 posterior submarginal spots rather large; f. **pomponius** *Hopff.,* band of the forewing indicated, or like that of the hindwing entirely absent; f. **eupatorion** *Luc.*, both wings without discal band, forewing with yellowish marginal band and the marginal spots of the hindwing enlarged (probably an aberration, only the type known, in col. Charles Oberthür).

eupatorion.

P. asius *F.* (= astyages *Drury;* manlius *Perty*) (14 d). A rather common Brazilian butterfly, distributed from Bahia to Rio Grande do Sul and westward into Eastern Paraguay. A broad band, narrowed towards the costa on the forewing, beginning at the costal margin of the forewing distally to the cell and ending before the abdominal margin of the hindwing; hindwing triangular, with long tail. On the underside the hindwing has 4 red basal spots, two of these placed at the costal margin, in addition a red streak before the abdominal margin and 3 red spots near the anal angle. The ♀ similar to the ♂, very rare in collections. The larva not known to us.

asius.

Marcellus-Group.

In the *marcellus*-group there is on the underside of the hindwing a red line running from the costal margin to the anal angle, which at least at the costal margin is edged with black at both sides. The species have bands on the wings, and the triangular hindwing is tailed. The 1. subcostal of the forewing is free; in one species *(bellerophon)* it is entirely absent.

P. marcellus *Cr.* (= ajax *auct.*) (14 c). The common Asimina Swallowtail of North America. Antenna brown-yellow; tibiae and tarsi green; forewing with 8 greenish white bands, the green colour in the membrane; the red line of the hindwing beneath margined with white proximally. Scent-scales of the ♂ long. The larva with 6 fine black transverse lines on each segment, the lines usually partly contiguous. The frontal prominences of the pupa divergent, the thoracic horn vertical, the lateral carina continued to the cremaster, not interrupted. Foodplants: Asimina, especially A. triloba, also Ericaceae and Lauraceae. This species is one of the classical examples of seasonally variable butterflies. In the specimens which hibernate as pupa once or twice the hairs of the frons are long, whilst they are short in the butterflies emerging from non-hibernated pupae. The principal forms are: forma hib. **marcellus** *Cr.* (= walshi *Edw.*), the spring form with broad white bands, sometimes red discal spots appearing on the upper surface of the hindwing (ab. **abboti** *Edw.*); forma hib. loc. **floridensis** *Holl.* is the spring form from Florida, which has broader black bands than *marcellus;* forma hib. **telamonides** *Fldr.* (14 c) is the later spring form, which forms the transition to the summer form, forewing somewhat longer than in f. hib. *marcellus*, the black bands broader, the fringes of the tail more extended white; forma aest. **lecontei** *R. & J.* (= marcellus *auct.* non *Cramer*), large, the black bands broad. — *P. marcellus* occurs from Southern Canada to Florida and Texas and westward into the prairie districts of the Mississippi Plain. Very common where pawpaw trees are found. The flight of the summer brood is more elegant than that of the spring specimens. The butterfly often travels northwards in considerable numbers, flying swiftly near the ground. Indeed in the northern districts where it occurs it is only an immigrant, not a permanent inhabitant.

marcellus.
abboti.
floridensis.
telamonides.
lecontei.

P. marcellinus *Doubl.* (= sinon *F.* non *Poda*) (14 c). Forewing with pale green bands and a row of submarginal spots; hindwing with black submedian band extending to the black distal margin; the red line on the under surface of the hindwing broad, reaching to the brown margin. Scent-scales of the ♂ long. — Jamaica.

marcellinus.

P. celadon *Lucas* (= sinon *Godt.* non *Poda*) (14 c). Similar to the preceding species, but on the forewing the pale green discal band is continuous with the 3. and 4. pale green cell-bands, not with the 4. and 5.; the red line on the underside of the hindwing thin, shorter than in *marcellinus*. The anal tergite of the ♂ is not divided, as the lateral prongs are absent. — Cuba; perhaps also in Florida.

celadon.

P. zonaria *Btlr.* (= sinon *F.* non *Poda*) (14 c). The pale bands narrow; the 4. and 5. pale green cell-bands of the forewing continuous with the discal band, narrow, separated from one another. — Haiti.

zonaria.

P. philolaus *Boisd.* (14 d). Antenna black; the 7. pale green band of the forewing only represented by a spot; hindwing with 2 red spots posteriorly; on the under surface the red line of the hindwing edged with black at both sides, undulate anteriorly. Scent-scales of the ♂ short, broad, irregular, produced in a number of filaments. The ♀ in 2 forms: ♀-f. **philolaus** *Boisd.* similar to the ♂, the underside paler; ♀-f. **niger** *Eimer* (= nigrescens *Eimer;* felicis *Fruhst.*) (14 d), the pale green bands of the membrane of the wings scaled with black, the wings therefore black with slight traces of the bands. — Larva not known. The butterfly common from Mexico to Nicaragua, in low situations, often resting in crowds on the sand at the edge of rivers.

philolaus.
niger.

P. xanticles *Bates* (= plaesiolaus *Stgr.*) (16 b). The pale bands yellow, the 7. band of the forewing continuous with the broad discal band, not as in *philolaus* replaced by a single spot. Two forms of the ♀; the one similar to the ♂, which doubtless exists, has not yet to our knowledge been discovered; the second form, ♀-f. **philenora** *Haase* (= sheba *R. & J.*), is black, with the exception of the yellow submarginal and the red anal spots. Scent-scales of the ♂ as in *philolaus*. — Panama and at the foot of the Santa Marta in North Colombia.

xanticles.
philenora.

P. oberthueri *R. & J.* (14 d). Similar to *philolaus*, the pale bands broader, the white discal area at the 2. median about $1^1/_2$ times as broad as the black marginal area; hindwing narrower than in *philolaus*,

oberthueri.

the black median band only extending to the cell; the latter less pointed than in *philolaus*. The scent-scales of the ♂ longer. The ♀ not known. — San Pedro Sula, Honduras (in coll. Charles Oberthür). Our figure is too small.

arcesilaus. **P. arcesilaus** *Lucas* (= anaxilaus *Fldr.*) (14 d). Antenna black. Forewing with 6 greenish bands and a row of submarginal spots, the 6. band short, separated from the discal area. Scent-scales of the ♂ long. — North Venezuela and Colombia.

P. epidaus. Antenna black; wings white, semitransparent, distally almost glassy. The 2. black band of the forewing extends to the hindmargin beyond the middle and the discocellular band is continued to the 2. median or to the posterior angle of the wing. Larva not known. Mexico to Honduras. — *epidaus.* **epidaus** *Doubl.* (15 c). The 2. black band of the forewing not more than half as broad as the light interspace between the 2. and 3. bands, generally narrower, the 5. band not extending far beyond the 2. median, not reaching to the marginal band; the posterior part of the median band, on the underside, thin or merely indicated. From East Mexico to Nicaragua, from whence specimens of this form have recently come. — *tepicus.* **tepicus** *R. & J.* 1. and 2. bands of the forewing broader than in the preceding form, 5. band posteriorly joined to the marginal band; hindwing longer and the costal margin shorter than in the other forms. West Mexico: province of Jalisco. — *fenochionis.* **fenochionis** *Godm. & Salv.* 5. band of the forewing prolonged to the hinder angle, hindwing much more extended black than in the previous subspecies. South-Western Mexico: Oaxaca, Guerrero.

bellerophon. **P. bellerophon** *Dalm.* (= coresilaus *Godt.*, swainsonius *Swains.*) (15 a). The only Papilio in which the 1. subcostal of the forewing is absent. Forewing semitransparent, with 4 black bands. ♀ similar to the ♂, with somewhat broader hindwing. Scent-organ of the ♂ woolly. — Brazil: Minas Geraës, Parana, Santa Catarina, rather rare.

Protesilaus-Group.

The species of the following *protesilaus*-group with the exception of *agesilaus* are hard to differentiate without the assistance of their genitalia. The red line on the under surface of the hindwing is only edged with black at one side. These white, black-banded butterflies include some of the commonest Papilios of South America; but this applies only to the ♂♂, the ♀♀ on the contrary being very rare in collections. The ♂♂ often rest in dense clusters on damp sand or mud. The larva of only one of the species (*P. stenodesmus*) is known with certainty; it is green, dorsally spotted with black and with transverse bands, sometimes the black markings are absent until a transverse line on the prothorax. The dorsal horn of the pupa is very long. The butterflies are tropical.

P. agesilaus. Easy to recognise by the red line of the hindwing being edged with black distally. Distributed from Mexico to Bolivia and Goyaz in Brazil, not yet known from Nicaragua and Costa Rica, where, however, the insect certainly occurs. — *fortis.* **fortis** *R. & J.* from South-West Mexico: Guerrero, Atoyac, Oaxaca. The black bands broad, 1. and 2. bands of the forewing about $^2/_3$ as broad as the interspace, both continued to the hindmargin, or the 2. band at least extending beyond the 2. submedian; the white submarginal band not broader than the black postdiscal band, the latter not divided longitudinally by a pale line; abdominal margin of the hindwing black, the two red anal spots surrounded with black. — *neosilaus.* **neosilaus** *Hopff.* The black bands narrower than in *fortis*, the 1. and 2. bands of the forewing at most half as broad as the white interspace, the transparent submarginal band broader than the black postdiscal band; abdominal margin of the hindwing partly white, the red anal spots anteriorly broadly edged with white, much less broadly surrounded with black than in *fortis*. East Mexico, Guatemala, British Honduras, Honduras. — *eimeri.* **eimeri** *R. & J.* The transparent submarginal band of the forewing between the 4. and 5. subcostal at most as broad as the black postdiscal band which is placed at its proximal side. West Colombia, upper Cauca Valley and Panama. — *agesilaus.* **agesilaus** *Guér.* (= conon *Hew.*, septemlineatus *Eimer*) (15 c). Postdiscal band of the upperside of the forewing without light median line, narrower than the costal half of the transparent submarginal band; subbasal band of the upper surface of the hindwing only represented by a thin streak placed on the 2. median. Very variable in size. Central and East Colombia, North Venezuela. — *autosilaus.* **autosilaus** *Bates.* Postdiscal band of the forewing divided longitudinally by a pale streak, subbasal band of the hindwing present on the upperside. Orinoco, Guiana, the Amazon, Goyaz, the eastern slopes of the Andes from Ecuador to Bolivia, as well as Paraguay, not yet known from South-East Brazil; like the preceding subspecies very common.

P. glaucolaus. In order to differentiate this and the following species with certainty, it is necessary to compare specimens from the same districts, and at times to take the sexual organs into consideration. In *glaucolaus* the black postdiscal band of the forewing is widely separated from the lower angle of the cell, or the teeth of the hindwing are very obtuse and the posterior submarginal spots suffused with brown. Scent-scales of the ♂ as long as in *protesilaus*; the harpe has at the dorsal edge a very long tooth and the central and ventral processes are short, the latter not reaching to the ventral edge of the clasper. From Panama to Guiana, Upper Amazon, southwards to Matto Grosso, not yet known to us from South-East Peru, Bolivia, Paraguay, Brazil proper and the Lower Amazon. Only ♂♂ in collections. A common species. Larva not known. — *glaucolaus.* **glaucolaus** *Bates* (15 a). Greenish, bands 1 and 2 of the forewing not extended beyond the 2. submedian vein, the 6. band 2 to 3 mm distant from the lower angle of the cell, not narrowed before the 2. radial, the transparent submarginal band at least twice as broad at the 5. subcostal as the black marginal band. Panama; Colombia, with the exception of the province of Cauca, perhaps also in North Venezuela. *melaenus.* — **melaenus** *R. & J.* The black bands broader than in the preceding form, the transparent submarginal interspace of the forewing usually only little or not at all broader at the 5. subcostal than the marginal band, in some specimens, however, much broader, in which case the interspace between bands 5 and 6 is narrowed correspondingly. West Colombia and upper Cauca Valley. *leucas.* — **leucas** *R. & J.* Wings only distinctly green towards the base; postdiscal band of the forewing narrowed near the lower angle of the cell and usually before the 2. radial. Hindwing more obtusely dentate than in *protesilaus*, the submarginal spots tinged with brown, 2. band of the forewing from the cell backwards narrower above than beneath, the side of the frons white. The harpe of *leucas* more obtuse than in *glaucolaus*, the dorsal tooth narrower and the central process longer. Orinoco, Guiana, the Amazons, East Ecuador, East Peru and Matto Grosso; common.

P. molops. The 1. and 2. black band of the forewing broad and both or at least one of them extending to the hindmargin, the 4. band usually reaching quite across the cell. The denticulate, deflexed dorsal margin of the harpe rounded-dilated. ♀ unknown. Tropical South America, widely distributed, but only singly among the white butterflies of this group. *molops.* — **molops** *R. & J.* Antenna brownish yellow; the black lateral stripe of the abdomen as broad as the yellow-white stripe placed at its dorsal side; 1. and 2. band of the forewing broad, the 1. not extending to the hindmargin, the other bands likewise broad, the 6. especially is broader than in all the other forms of the *protesilaus*-group, being at least as broad as the interspace between bands 5 and 6; this 6. band close to the lower angle of the cell. Dorsal margin of the harpe abruptly dilated. North-West Ecuador and West Colombia. *hetaerius.* — **hetaerius** *R. & J.* (15 b). Easy to differentiate from the preceding form by the thinner black bands; it is so similar to the *protesilaus* forms occurring together with *hetaerius* as to be easily mistaken for them, but is much smaller than the Colombian *protesilaus* and has a much less sharply dentate hindwing. Sides of the frons always white; 1. and 2. band of the forewing extending to the hindmargin, or the 2. band very little abbreviated; the white submarginal lunule between the 1. and 2. radial of the hindwing narrower than the corresponding marginal lunule; the interspace between the subbasal and median band on the under surface of the hindwing longer than in *protesilaus*. Harpe somewhat different from the harpe of *molops*, dorsal and ventral edges more denticulate, the ventral process longer and curved towards the ventral edge of the clasper. Guiana, Amazons, Colombia, Ecuador (except the western side), Peru and Bolivia. *megalurus.* — **megalurus** *R. & J.* Antenna black as in the Brazilian *protesilaus*; frons laterally white; the white subdorsal line of the abdomen thin; 1. and 2. band of the forewing extend to the hindmargin, 6. band separated from the angle of the cell; the black markings of the hindwing somewhat more developed than in *hetaerius*, the red anal spot longer; tail long and broad. Dorsal edge of the harpe less dilated than in the other forms of *molops*. Brazil: Leopoldina, but probably more widely distributed.

P. protesilaus. Submarginal spots of the hindwing white, rarely slightly yellowish, hindwing more strongly dentate than in *glaucolaus*, the 1. and 2. band of the forewing on the whole shorter than in *molops*. Frons sometimes entirely brown-black. The scent-scales very long and thin. The dorsal edge of the harpe deflexed, lying flat on the harpe, strongly dentate. Larva not known. Mexico to South Brazil. *penthesilaus.* — **penthesilaus** *Fldr.* Large; dorsal streak of the abdomen very narrow; 1. band of the forewing extending to the 2. submedian vein, 2. band a little beyond it; 4. band short, triangular, rarely reaching to the 2. cell-fold; 6. band separate from the angle of the cell, somewhat narrowed before the 2. radial, posteriorly almost always separated from the marginal band; red anal spot of the hindwing large, marginal teeth partly strongly projecting, fringes white except a the extremities of the veins. Apex of the harpe pointed, dorsal edge rounded. Mexico, the only form of this group which occurs so far north; it is found in Vera Cruz, Yucatan, Atoyac, Oaxaca etc., in wooded districts, and in the South intergrades completely with the next form. *macrosilaus.* — **macrosilaus** *Gray* from Guatemala, British Honduras, Honduras and Nicaragua. 1. and 2. bands of the forewing narrow, the 4. is absent or is only represented by a costal spot, the 6. somewhat angled at the 2. radial and narrowed costad, posteriorly connected with the marginal band; the latter less sharply defined and somewhat paler than in *penthesilaus*, transparent, submarginal band with hairy scales; red anal spot of the hindwing narrower than in *penthesilaus*. Apex of the harpe truncate, central process shorter than in the Mexican form, spatulate, strongly dentate at the apex, ventral process not extending to the clasper, curved backwards. *leucones.* — **leucones** *R. & J.* Black dorsal line of the abdomen absent or thin; 1. band of the forewing thin, 2. extending to the hindmargin or nearly to it, the interspaces between 1. and 3. of equal breadth at the median vein; the white marginal and submarginal spots of the hindwing large, the margin only black at the extreme tips of the veins, but the fringes from the costa to the 2. radial partly black; red anal spot large. Harpe similar to that of *macrosilaus*, some of the teeth of the ventral edge enlarged, ventral process non-dentate, not extending to the lower edge of the clasper, the teeth of the spatulate central process more or less curved dorsal. Manauré, at the foot of the Santa Marta in North Colombia; probably this form inhabits the north coast of Colombia. *dariensis.* — **dariensis** *R. & J.* Dorsal line of the abdomen broad, the margin of the hindwing between costa and 1. radial entirely or almost entirely black. The dilated part of the dorsal edge of the harpe distally with triangular tooth, ventral process denticulate from the base to the tip. Very similar to *archesilaus,* forewing at the base broader green, the black bands somewhat thinner, band 1 not extending beyond the 2. submedian, band 4 rarely reaching to the 2. cell-fold; hindwing less strongly dentate than in *archesilaus,* the subbasal band of the forewing beneath narrower. Wings of the ♀ slightly yellowish, especially the anal region of the hindwing. Costa Rica, Panama and the *archesilaus.* islands off the West coast of Panama. — **archesilaus** *Fldr.* (= rubrocinctus *Eimer* partim) (15 a). On the whole considerably larger than *protesilaus,* hindwing more strongly dentate, the apex of the cell of the hind- *protesilaus.* wing beneath more or less edged with red. Colombia, West Ecuador and North Venezuela. — **protesilaus** *L.* (15 c). Bands 1 and 2 of the hindwing usually extend beyond the 2. submedian, band 4 mostly goes beyond the middle of the cell and sometimes reaches to its hinder margin, the transparent submarginal band has at least in the costal third brownish scales; hindwing more strongly dentate than in *glaucolaus leucas.* Frons in specimens from the Andes often entirely brownish black. Dorsal edge of the harpe dilated into a tooth, which is sometimes absent in specimens from the Andes. Orinoco, Guiana, the Amazon from Pará upwards, *nigricornis.* and Eastern slopes of the Andes of Ecuador, Peru and Bolivia. — **nigricornis** *Stgr.* (= leilus *Swains.* partim). Antenna usually black; frons brownish black, not white at the sides. Dorsal edge of the harpe with large tooth. East Paraguay and Brazil.

helios. **P. helios** *R. & J.* (15 b). Antenna and frons brownish black as in *nigricornis.* Wings brownish; fore wing transparent; hindwing more sharply dentate than in *nigricornis,* the black postdiscal band straight, not interrupted posteriorly as in the *protesilaus* forms, the marginal and submarginal bands yellowish. Under surface more yellow than upper; the red line of the hindwing distally edged with white. Dorsal edge of the harpe not dilated into a large tooth, the apex of the harpe pointed, ventral process not denticulate. — Brazil, only known to us from Parana.

orthosilaus. **P. orthosilaus** *Weym.* (16 c). Antenna yellow-brown, not black. Frons yellowish white at the sides. Forewing transparent; hindwing strongly dentate, above also with a median band, the postdiscal band and the black margin merged together into a broad marginal band, the yellowish marginal and submarginal lunules smaller. — Paraguay and Goyaz in Brazil; rare, to our knowledge only 3 ♂♂ at present known.

earis. **P. earis** *R. & J.* (16 a). Antenna dark yellowish brown. Frons yellowish at the sides. Wings slightly yellowish, beneath slightly reddish; bands narrow, 4. band of the forewing reduced to a small spot, 6. band close to the lower angle of the cell; the yellowish marginal and submarginal spots of the hindwing narrow, above and beneath smaller than in the name-typical *protesilaus;* hindwing beneath with long arrow-shaped patch before the abdominal margin, this patch reduced in *protesilaus.* Dorsal margin of the harpe slightly widened, ventral process non-dentate, not extending to the lower edge of the clasper, central process short, broad, spatulate, strongly dentate. ♀ not known. — Eastern Ecuador, probably more widely distributed.

stenodesmus. **P. stenodesmus** *R. & J.* (15 b). Antenna black. Frons laterally white. Forewing distally transparent, the bands thin, interspace between band 1 and 2 half as wide again as that between bands 2 and 3; hindwing longer than in *protesilaus* and *telesilaus*, usually slightly yellowish, strongly dentate, median band of the under surface somewhat curved, placed nearer to the extremity of the cell than in *protesilaus* and *telesilaus.* Dorsal edge of the harpe not dilated. For larva and pupa see p. 40. — Paraguay; Brazil, from Petropolis to Blumenau; a common species, usually mistaken for *protesilaus* and *telesilaus.*

P. telesilaus. Body and wings yellowish; antenna brownish yellow, frons white at the sides; submarginal and marginal spots of the hindwing yellow. Dorsal edge of the harpe slightly or not at all dilated; central process either simple or ventrally denticulate at the base. Scent-scales shorter and broader than in the other species of this group, with the exception of *agesilaus.* Larva not known with certainty. Panama to South Brazil; the ♂♂ very common, often resting together with *protesilaus, agesilaus, glaucolaus,* etc., on *dolius.* damp sand or mud. — **dolius** *R. & J.* Band 1 of the forewing not prolonged to the hindmargin; margin of the hindwing more extended white than in the next subspecies; subbasal band of the underside of the hindwing not entering the basal cell. Dorsal edge of the harpe only very feebly dentate, scarcely at all dilated, central process not denticulate ventrally at the base. Panama and West coast of Colombia. — *telesilaus.* **telesilaus** *Fldr.* (16 a). Band 1 of the forewing continued along the 3. submedian; subbasal band of the hindwing beneath entering the basal cell. Dorsal edge of the harpe dilated, denticulate, central process with dentate ridge ventrally at the base. Central Colombia to Guiana and Pará, distributed southwards to Bolivia, Paraguay and Rio Grande do Sul.

Thyastes-Group.

In the species of the densely scaled *thyastes*-group the hindwing has on the under surface a red or brown-yellow band, which runs about parallel with the outer margin and begins at the costal margin beyond the middle. In all the species the 1. subcostal anastomoses with the costa, which does not occur in the preceding groups.

P. marchandi. Hindwing beneath with brown-yellow discal band. Markings of the upper surface yellow, both wings with yellow discal area and submarginal spots, the area of the forewing continued towards the costa by several spots. Larva not known. Mexico to West Ecuador. — **marchandi** *Boisd.* (16 b). The *marchandi.* brownish yellow discal band of the hindwing beneath usually curved anteriorly. Discal area of the upper surface of both wings deep dark yellow. Mexico to Honduras, in hilly country, in Guatemala common up to 2500 ft. — **panamensis** *Oberth.* The yellow colour on the whole paler than in the northern form, some- *panamensis.* times pale yellow, the submarginal spots between the 2. radial and the 2. median of the hindwing larger, the discal area of the forewing more deeply idented at the veins. Costa Rica to West Ecuador.

P. thyastes. Forewing with complete or interrupted yellow discal band and hindwing with large yellow discal area; underside of the hindwing with red discal line. Ecuador to Bolivia; Brazil. — **thyastinus** *thyastinus.* *Oberth.* The submarginal spots between the 2. and 3. radial of the forewing separated by a corresponding discal spot, discal band usually interrupted at the 3. radial, the 1. submarginal spot is absent or small. Eastern slopes of the Andes from North Ecuador to Central Peru, Upper Amazon. — **zoros** *R. & J.* Like the preceding; *zoros.* the 1. submarginal spot of the forewing sharply defined; the discal spot between 2. radial and 1. median usually truncate distally, the upper angle not rounded. South-East Peru and Bolivia. — **thyastes** *Drury* *thyastes.* (= diaphorus *Hbn.*) (16 b). Paler yellow than the Andes forms; discal band of the forewing not interrupted, or only very slightly, the submarginal spot between the 2. and 3. radials quite close to the discal spot or partly merged together with it; the black discal area of the hindwing not entering the cell. Southern Brazil, only known from São Paulo to Rio Grande do Sul.

P. dioxippus *Hew.* (16 c). Wings on the upper surface with common green-yellow triangular area; *dioxippus.* forewing with vestiges of costal bands; hindwing with 2 red spots at the anal angle. — Very common in Bogotá-collections; Valleys of the Cauca, Magdalena and Meta Rivers, at moderate elevations. ♀ not known.

P. lacandones. The discal area of the forewing extends costad to the lower angle of the cell or beyond it. Guatemala to Bolivia. ♀ not known. — **lacandones** *Bates* from Guatemala and Panama. Fore- *lacandones.* wing with 4 thin submarginal spots, discal area extending anteriorly beyond the 2. radial. — **diores** *R. & J.* *diores.* (16 b). Forewing broader, with 5 submarginal spots which are larger than in the preceding subspecies, discal band not extending beyond the 2. radial, the subapical spot of the cell much smaller than in *lacandones.* Eastern slopes of the Andes of Ecuador, Peru and Bolivia.

P. calliste. Bands and spots of the wings pale yellow or greenish yellow, similarly arranged as in *dioxippus;* submarginal row of the forewing curved; hindwing with 2, rarely 3 red spots, and with 2 very large greenish yellow marginal spots from the 2. radial to the 1. median; underside of the hindwing with pale marginal band. ♀ not known to us. Mexico to Costa Rica. — **calliste** *Bates* (= lorzae *Boisd.*) (16 b). *calliste.* The two outer cell-bands of the forewing clearly developed and the last but two more or less indicated, the discal area emarginate at the cell before the 2. median. Western Mexico, Guatemala and British Honduras. — **olbius** *R. & J.* Larger than the preceding form; also the outer cell-bands of the forewing suffused with *olbius.* black in the middle; discal band broader, the black marginal area on both wings consequently narrower than in *calliste;* submarginal line of the forewing only vestigial from the 1. median backwards. Costa Rica.

P. leucaspis. Frons entirely brownish black; abdomen yellowish beneath; the wings with common triangular green-yellow area; the brown marginal area with blackish lines parallel to the margin. ♀ not known. Colombia to Bolivia; a very common species in the Andes. — **lamis** *R. & J.* The posterior cell-spots of the *lamis.* forewing large, very distinct also beneath. Colombia. — **leucaspis** *Godt.* (16 c). The cell-spots of the fore- *leucaspis.* wing smaller, usually only indicated beneath, the two outer posterior cell-spots more widely separated from one another. Eastern slopes of the Andes, from Ecuador to Bolivia.

Dolicaon-Group.

The 7 following Papilios form the *dolicaon*-group. In these species no red or yellow band is present on the under surface of the hindwing. In some species only the 1. subcostal of the forewing is confluent distally with the costa, whilst in others the 2. subcostal also anastomoses with it.

P. serville. Forewing with broad black cell-band, which runs obliquely from the costal margin to the marginal area, being united with the latter. In the forewing the 1. and 2. subcostal distally confluent with the costa, the 2. subcostal rarely free. ♀ not known. North Venezuela, Colombia to Bolivia. Common. — **acritus** *R. & J.* The spots on head and breast small, also the yellowish lateral stripe of the abdomen *acritus.* reduced, these markings sometimes absent; cell of the hindwing usually without blackish streaks. North Venezuela, East and Central Colombia. — **serville** *Godt.* (= servillei *Boisd.*, boliviana *Weeks*) (16 c). The *serville.* spots on breast and head always present, abdomen with 2 yellowish stripes on each side, of which the upper one is broad; cell-streaks of the forewing distinct, the subapical area of the cell always shaded with brown; the pale patches before the margin of the hindwing, on the under surface, more distinct than in *acritus.* West Colombia and Ecuador to Bolivia.

P. columbus *Koll.* (= hippodamus *Fldr.*, burtoni *Reak.*) (16 c). Very nearly allied to *serville;* the *columbus.* narrow green costal band of the forewing more oblique than in *serville,* marginal area of the forewing beneath more purplish white, the blackish lines in it and the yellowish streak on the underside of the

abdominal fold of the hindwing less distinct than in *serville;* the black distal area of the hindwing sometimes
touches the cell, but does not enter it. Specimens with yellowish instead of deep red anal spot are ab.
fulva. **fulva** *Oberth.* ♀ similar to the ♂. Cordillera of Bogotá to the West coast of Colombia, North-West Ecuador;
common; a ♀ in coll. H. J. Adams.

P. orabilis. Club of the antenna black; the black median band of the forewing does not extend
to the marginal area, hindwing with long red anal spot, which reaches to the 2. median. ♀ not known.
orabilis. Guatemala to West Colombia. — **orabilis** *Btlr.* The oblique discal band of the hindwing not marked above.
isocharis. Costa Rica, Panama and (doubtfully) Guatemala. — **isocharis** *R. & J.* (17 a). Median band of the forewing
always extending to the 2. median; the black marginal area of the hindwing broader than in *orabilis,* with
an oblique spur pointing forwards, which corresponds to the posterior part of the discal band of the under
surface. West Colombia.

salvini. **P. salvini** *Bates* (17 b). The black bands very much reduced, a narrow band in the middle of the
cell, not extending beyond the median vein; under surface glossy white; hindwing with black-brown discal band
which runs almost straight from the costal margin to the red anal spot. 1. and 2. subcostals of the fore-
wing distally confluent with the costa. ♀ and larva not known. — Guatemala, British Honduras and
(doubtfully) Yucatan; most of the specimens in collections come from the woods in Northern Vera Paz,
Guatemala.

callias **P. callias** *R. & J.* (= columbus *Hew.* non *Kollar*) (17 a). The short cell-band of the forewing much
broader than in *salvini,* the discocellular band also short and broad, confluent with the marginal area at the
lower angle of the cell; hindwing shorter than in the preceding species; the marginal tooth placed before
the thin tail prolonged, thin. Hindwing beneath with black discal band, divided into two branches at the
extremity of the cell; this band in the ♀ more distal, placed quite near to the marginal area, with which
it is almost confluent. — East Ecuador, Peru and the Amazons.

P. dolicaon. Head and breast black, dotted with white. Black cell-band of the forewing oblique
as in *callias,* but still broader than in that species, a macular band between the cell and apex of the wing.
Hindwing rounded, with thin tail, beneath with forked discal band, the proximal branch of the fork running
to the abdominal margin. The 1. subcostal anastomoses with the costa, 2. subcostal free as in *callias.* Larva
hebrus. not known. Colombia to Paraguay and South Brazil. — **hebrus** *R. & J.* The white subapical area of the
cell of the forewing narrowed costad; hindwing more strongly rounded than in the other subspecies. Under
surface of both wings purplish; the discal area of the forewing divided into spots by broad black vein-
deileon. streaks; hindwing yellowish. Colombia: Magdalena Valley and Cordillera of Bogotá. — **deileon** *Fldr.* (17 a).
Marginal band of the hindwing beneath narrow below the 1. radial, at the 2. radial only 1—2 mm broad,
the proximal branch of the discal band traversing the cell at the base of the 2. median, the greenish white
apical spot of the cell much larger than the spot placed at its costal side. East Ecuador to Bolivia and
Matto Grosso, and the Amazon downwards to Pará; according to Felder also from "Bogotá", but his spe-
tromes. cimens may be from the East side of the Cordillera of Bogotá or from North-East Ecuador. — **tromes**
R. & J. Green-white subapical area of the cell of the forewing above very faintly shaded with black;
marginal band of the hindwing broad, the green-white spots placed at the apex of the cell between the 1.
and 3. radials small; marginal band of the underside of the forewing below the 1. radial only about 1 mm
broad; the proximal branch of the discal band of the hindwing placed somewhat distally to the base of the
2. median, green-white apical spot of the cell at most as long as the spot placed before it between the
dolicaon. 2. subcostal and the 1. radial. North Venezuela. — **dolicaon** *Cr.* Marginal band of the forewing beneath
at the 2. radial 3—5 mm broad in the ♂, somewhat narrower in the ♀; proximal edge of the marginal area
of the hindwing above remote from the cell; proximal branch of the discal band of the hindwing beneath
as in *tromes* distal to the base of the 2. median vein; the brownish yellow postdiscal spot between the 2. sub-
costal and 1. radial placed transversely to the veins. Orinoco; Guiana. — **deicoon** *Fldr.* The white sub-
apical spots of the forewing large; the black marginal area of the hindwing narrower than in the other
forms. Paraguay; Brazil, from Rio Grande do Sul to Goyaz.

iphitas. **P. iphitas** *Hbn.* (= dolicaon *Godt.* non *Cramer*) (17 a). Similar to *dolicaon;* yellow, the black marginal
area of the forewing narrower posteriorly; the oblique discal band of the hindwing on the upperside present
from the black marginal area at least to the 2. subcostal. ♀ not known to us. — Brazil, in hilly country:
Espiritu Santo, Organ Mountains in the province of Rio de Janeiro, and Pernambuco.

2. Genus: **Euryades** *Burm.*

Frons with short hairs. Tibiae naked, not woolly, furnished with a few bristles; tarsi short. Antenna with strong club and a row of sensory grooves at each side. Stalk of the subcostal fork of the forewing as long as the posterior branch (= 5. subcostal vein), 1. radial before the middle of the cell; basal cell of the hindwing large, 2. subcostal vein very distal, branching from the cell at about the same height as the 2. median, apex of the cell rounded, the lower angle obtuse. The bipartite claspers of the ♂ not quite closed together; the ♀ after copulation with so-called pouch. Larva on Aristolochia, and like the pupa, formed and coloured quite as in the Aristolochia-Papilios of the *Papilio perrhebus* group. In these Aristolochia-Papilios we find already a rudimentary pouch; in *Euryades* it is large, bilobate. — This genus is confined to the Rio Paraná (with its tributaries), Argentina and Paraguay; 2 species, which are both sexually dimorphic.

E. duponcheli *Luc.* (17 b). Tailed. ♂ velvety black, with a yellow band of large patches in the middle and on the hindwing also 2 rows of red spots, of which the submarginal row is only more or less indicated above. ♀ yellow-brown, black distally and in the cell of the forewing, the macular band above only indicated by 2 subcostal patches, which are situated on the forewing; the red spots of the hindwing above vivid red; under surface for the most part grey-yellow. — From Buenos Aires northward, commonest in North-West Argentina. *duponcheli.*

E. corethrus *Boisd.* (17 b, c). Tailless. ♂ much paler than in *duponcheli,* semitransparent; hindwing also above with a band of yellow spots outside the red discal spots. ♀ likewise paler than in the preceding species, the margin more narrowly black, the very pale red submarginal spots of the hindwing large, the discal row on the contrary replaced by black spots, only the last always dotted with reddish grey, but often also the first and sometimes the next two as well. — Not quite so common as the preceding species and not so widely distributed; more in the neighbourhood of the Rio Paraná and Rio Paraguay. *corethrus.*

3. Genus: **Baronia** *Salv.*

Antenna short, with broad club. Legs likewise very short, femora with long hairs, before the extremity with some stiff bristles, tibiae rough with bristles; 1. segment of the tarsus about $^1/_3$ as long as the tibia; the spur of the foretibia reaching to $^3/_4$. Forewing rather narrow, 1. and 2. subcostals close together, the 1. confluent with the costa and partly also with the 2. subcostal, the 3. absent, the 4. and 5. rather long stalked; 1. radial arising from the cell; hindmargin of the cell almost straight, no median spur; hindwing rounded, with large basal cell, the 1. subcostal, which closes it distally, very weak; precostal forked, 2. subcostal branching off much more distally from the cell than the 2. median. Scales of the wings rounded. — The only known species belongs in the neighbourhood of *Parnassius.* — Guerrero, West Mexico.

B. brevicornis *Salv.* (17 c). Mr. O. T. BARON discovered this peculiar insect in the neighbourhood of the town of Chilpancingo, recently destroyed by an earthquake, where the butterflies were flying in June and July at a height of 4500 ft. He only took 5 specimens, which are in the collections of GODMAN, ROTHSCHILD and the California Academy. Blackish brown, with pale yellow markings; all the spots of the hindwing beneath are silvery white as well as the apical and submarginal spots of the forewing. ♀ somewhat larger than the ♂, the light markings more extended. *brevicornis.*

4. Genus: **Parnassius** *Latr.*

For the general characters the reader is referred to the descriptions in Part I, Vol. I, p. 19. A special distinguishing feature of the genus is the absence of the hindmarginal vein in the hindwing and of the transverse vein present in the genus *Papilio s. str.* between median and submedian near the base of the forewing. A striking characteristic moreover is the pouch (Abdominaltasche, poche cornée) of the impregnated female, mentioned in *Euryades,* which besides is only found in a few of the allied genera, namely in *Eurycus Boid., Luehdorfia Crüg.,* also occurring in a single species of the genus *Papilio (P. proneus Hbn.)* (JORDAN) and in the whole family of Acraeidae. Exhaustive observations and investigations have been devoted to the nature of this appendage. It is not an organ of the body, but a product of the insect itself, and is produced during the copulation of the sexes in this way, that the ♂ ejects from a gland at the anal extremity a secretion which hardens very quickly, and in the moment of ejection with the assistance of a special membranous organ (peraplast) assumes a definite form and is attached to the abdomen of the ♀ (SIEBOLD, THOMSON, SCUDDER). This product is therefore an independent creation of the organs of copulation, but its form appears to depend on the peculiar structure of these, and is therefore to be regarded as a valuable means of help in the differentiation of the species and in arranging them into natural groups. Concerning the purpose of this peculiar appendage nothing is known with certainty. One would suppose that it plays some part in oviposition, but this is contradicted by THOMSON's observations in breeding *Parnassius apollo L.* in the Insectarium of the Zoological Gardens in London; he is of the opinion that the pouch is without any utility after copulation. The fact that ♀♀ of *Parnassius* species have been taken, in the pouch of which a loose egg was found, permits the supposition that the insect carries this with it until it has found a suitable place for laying.

The *Parnassius* forms are inhabitants of the mountains in the Northern temperate zone, entirely wanting in the tropics, subtropics and the Southern temperate zone of America, even in those heights of the Cordillera which would suit their conditions of life. Their area of distribution is confined to a Western strip of North America. As Southern limit about 35° N. Lat. may be taken, in the East the principal chain of the Rocky Mountains forming the boundary line, whilst northwards they extend in Alaska as far as the polar circle; in the mountains they ascend to about 4000 m (14000 English ft.).

America possesses representatives of only two of the groups into which *Parnassius* can be naturally divided according to the abdominal pouch, of which *P. thor, clodius* and the allied forms are to be classified with the Palaearctic *clarius*-group with whitish, elongated, vesicular pouch, whilst the *smintheus* forms belong to the *apollo*-group, in which the pouch is small, dark brown, carinate beneath, and pointed like a leaf.

P. eversmanni Mén. (vol. I, 10 g) is represented in Alaska by a form with narrowed bands, to which *thor.* is to be applied the name of **thor** *H. Edw.,* proposed for the ♀. Ground-colour of the ♂ yellow as in the Asiatic form, markings of the wings agreeing rather closely with those of the ♀ of *P. clodius,* but the bands and spots narrower, and the discal band outside the cell somewhat further removed from it, less irregular and more sharply defined; the hindwing without submarginal crescents, only 2 indistinct patches near the disc, the basal and hindmarginal area blackish, at the usual places 2 ocelli filled in with red, the posterior one connected with a black anal spot by a narrow band-like shading. ♀ whitish with broadened bands, the anal spot on the hindwing with two red dots, its connection with the posterior ocellus broader, near the outer margin a row of sharp black lunules. Only 3 specimens (1 ♂, 2 ♀♀) known: at the upper course of the Yucon River, June.

clodius. **P. clodius** *Mén.* (17 d) is very nearly allied to *eversmanni.* Ground-colour white, only in the ♀ the short costal band placed outside the cell connected with the hindmarginal spot by an irregular dusty band, the glossy submarginal band of the forewing sharp but narrow, the ♂ with small, the ♀ with larger, crescent-shaped submarginal spots on the hindwing; on the latter the anal spot mostly centred with red. Coast district of Oregon and California, southwards to about San Francisco. The biology is still unknown. It is suspected that Viola is the food-plant, perhaps also Sedum and possibly Vaccinium or Rubus (dewberry) (Wright). Is commonly (even in recent works) confused with the specifically different *P. clarius Eversm.* *altaurus.* from Asia, or this name is applied to the mountain form of the species (see further below). — Ab. **altaurus** *Dyar* is an aberration from the name-typical form with yellowish instead of red anal spots. — In the Northern adjoining districts occurs a race, larger on the average, with much broadened marginal pattern on the forewing. Marginal and submarginal bands are merged into a broad stripe, through the middle of *claudianus.* which runs only one row of small white crescents. This form has been introduced as **claudianus** *Stich.* (17 c). In the ♀ the black band-pattern is less intensive but broader, the connection of the costal spot and hindmarginal spot only shadowed as a narrow streak, on the hindwing very large marginal lunules, the anal spot without red dot. Washington Ter., Vancouver Island, types No. 27918 to 27921 in the Kgl. *baldur.* Zool. Museum Berlin. There are transitions to the typical form. — **baldur** *H. W. Edw.* (17 e) occurs in the mountains to the East of the district of the principal form. This is distinguished by reduced and less sharp markings. In the ♂ the hindmarginal spot is mostly absent on the forewing and the anal spot on the hindwing; the posterior ocellus is reduced as a rule; the ♀ has no submarginal crescents on the hindwing, the anal spot is rarely centred with red; in both sexes the white dusting very thin, somewhat transparent. Sierra Nevada, about from the Emigrant to the Truckee Pass; also reported from the Wahsatch Mountains (Utah). Varies rather considerably, and forms on the one hand transitions to the coast form, on the other hand there occurs a further reduction of the pattern. Specimens with point-like, reduced posterior ocellus *lusca.* are not rare: ab. **lusca** *Stich.* (17 e); or those in which the two ocelli only remain as vestiges: ab. **menetriesii** *menetriesii.* *H. Edw.* (17 e). On the other hand ab. **lorquini** *Oberth.,* in which the ocelli are entirely absent, occurs *lorquini.* only sparingly. In the type of this form in addition all the black markings also are effaced except two narrow oblong spots in the middle and at the end of the cell of the forewing and some blackish dusting *gallatinus.* at the hindmargin of the hindwing. — A further race from Montana, **gallatinus** *Stich.,* is distinguished by the band-pattern of the ♂ being in general weakly marked, while on the contrary there is a complete discal band outside the cell, as in the ♀ of the typical form; hindwing without anal spot and with small ocelli; the ♀ is more strongly marked, partly dusted over with black, the forewing with broader submarginal band, on the hindwing the submarginal lunulus and the anal spot strongly developed. Gallatin County (Elrood).

smintheus. **P. smintheus** *Doubl.* is an American representative of the Asiatic *P. phoebus F.* Ground-colour chalk-white, forewing with the peculiar black spots of the *apollo*-group, in the typical form an incomplete submarginal band on the forewing, the costal spot faintly centred with red, the transparent border narrow at the outer margin, commonly only extending to the middle of the wing, interrupted by white marginal spots, the white fringes spotted with black at the extremities of the veins; hindwing with 2 small ocelli, filled in with red, hindmarginal spot as a rule weakly indicated. ♀ as a rule somewhat larger, forewing with larger costal spots, filled in with red, strong hindmarginal spot and broader margin, hindwing with larger ocelli, 1—2 anal spots filled in with red and a row of submarginal crescent spots. Extraordinarily variable in size and markings, in the ♂ the submarginal band of the forewing sometimes more strongly developed, the glassy border very variously developed, the white patches of the same sometimes more weakly, sometimes more strongly expressed, occasionally a stronger black spot in the hindmarginal area, the costal spots also quite black, more copiously dotted with red or white; on the hindwing the anal spot in individual instances more distinct and near the margin sometimes some blackish spots. In the ♀♀, particulary those from high lying localities, more copious black marking and partial darkening of the white ground-colour are of no uncommon occurrence, also in both sexes individuals often occur with yellowish instead of red ocelli, which are usually referred to *behrii* (see further below). But this name must be reserved for the Western race of the species. Specimens without red on the upper surface, in which even the ocelli of the hindwing are reduced to black spots, are usually called ab. *sedakovii Mén.* This is, however, an Asiatic form of *P. phoebus F.* and the name has been replaced by ab. **mendica** *Stich.* *mendica.*

The egg is semispherical, somewhat depressed at the top, the upper surface thickly granulated, the colour ivory white with a faint greenish tint. Development variable, some eggs yield the larvae in the same year, others hibernate. The young larva is nearly cylindrical, of black colour, the body covered with small hairy tubercles. When fullgrown it attains a length of 23—25 mm (0,9—1,1 inch), the ground-colour is then black-brown, brown on the underside and the legs, the body covered with short stiff hairs and marked with 4 rows of yellow, sometimes white spots; it has a fork-shaped, eversible yellowish gland in the neck; the head is broad, with impressed suture, of black colour. Pupa cylindrical, stout, about 15 mm (0,6 inch) long, the upper surface finely granulated, of yellow-brown colour with greenish reflection. When the larva is about to pupate it draws a leaf or several leaves together into a sort of cocoon by some silken threads, but pupae have also been found on the ground under pieces of wood without a trace of a cocoon. Duration of the pupal stage unknown. The time of flight of the butterflies lasts from May to September, but appears to depend on the temperature and other climatic conditions and the principal time of emergence is the month of July (Courtis). The oviposition seems to be irregular and regardless of place, and it is left for the newly-emerged larva to find its food-plant; it was observed that the eggs were laid on the stalks of grass or other plants (Composites, Artemisia, etc.), or even on stems or on the ground itself, but always near to this. Various opinions have been advanced as to the food-plant; thus, among others, Bruce suspected it was Castelleia integra, and also suggested Saxifraga, later he assigned Sedum stenopetalum as the true food-plant; W. H. Edwards reared the larvae on Sedum ternatum, but they also accepted other species of Sedum. By night they live concealed in secure hiding-places on the ground, not coming out until the sun shines; they are commonly attacked by parasites (Tachinids). The imagos are common where they occur, but are difficult to catch, not only on account of the natural obstacles of the ground, but also on account of their rapid and high flight. Newly emerged males emit, particularly at the time of copulation, a peculiar, pungent and disagreeable odour, which reminds one of mice (W. H. Edwards, Wright, Reakirt, Fruhstorfer, etc.). Habitat of the typical race: the Rocky Mountains in Wyoming and Colorado.

The species is very variable, but according to our experience with the European and Asiatic species the formation of races in certain restricted localities is to be assumed as in the highest degree probable. These races nevertheless intergrade with one another and in the region of flight of the one form are found individuals with characteristics of the others and vice versa, so that the characters assigned to the following forms are only to be taken in a very general sense. In doubtful cases the locality of the insect must settle the question. — As **hermodur** *H. Edw.* only a strongly darkened form of the ♂ is usually *hermodur.* described. The original is recorded from the Southern part of the distribution-area. ♂♂ (17e) from that district for the most part differ in that the glossy border of the forewing is not interrupted by white spots at the margin, the submarginal band is only very weakly developed, and the costal spots are occasionally much reduced; ♀♀ occur in a more or less darkened form. The name may be applied collectively to the Southern race. South Colorado, Northern New Mexico. — In **sayii** *W. H. Edw.* (17d) the ♂♂ are usually *sayii.* larger, with larger deep red ocelli, and otherwise approach the Asiatic *intermedius Mén.*; in the ♀♀ as a rule a more copious sprinkling with black scales is noticeable, so that they agree in this with the ♀♀ of the previous form; the costal spots of the forewing are large and quite filled in with red, the glossy border broad, only separated from the submarginal band by a row of luniform spots, the submarginal crescents of the hindwing especially strongly marked and merged together into a broad band. Montana, Judith Mountains. — From the Northern parts of the Rocky Mountains there is a smaller form described as **nanus** *nanus.* *Neumoeg.* The type-specimen of this resembles the ab. *mendica;* in the ♂ the red colour is entirely absent on the upper surface of both wings, the greater part of the outer margin is glassy grey, on the hindwing only the hindmarginal area is blackish and in the disc there is a black spot instead of the ocellus. The ♀ is similar to that of *hermodur,* darkly dusted, with 2 costal spots filled in with red, hindwing with glassy grey border, the red ocelli with white pupils, all the black markings vivid. British Columbia and Montana. — In the West the species is represented by **behrii** *W. H. Edw.* (17d); a rather large form, in which the ♂ *behrii.* usually has somewhat longer wings, the submarginal band is marked anteriorly by sharp black luniform spots, which become obsolete posteriorly, the anterior ones of the costal spots usually centred with red, the glossy border is confined to the anterior half, narrowed and so restricted by the white marginal spots that it only remains as a row of blackish wedge-shaped spots; ocelli of the hindwing small. The red-

yellow colouring of the ocelli and the development of small submarginal spots on the hindwing are given as special characteristics, but these features are not constant. The ♀♀ as a rule have the costal spots on the forewing strongly filled in with red, a strongly marked submarginal band, the disc more or less dusted with black, on the hindwing the submarginal lunules are confluent as a sort of band and there are grey spots at the margin itself. In aspect on the whole like *sayii*-♀ or a lighter *hermodur*-♀. California (Sierra
niger. Nevada), Utah. Ab. **niger** *Wright* is an individual form of this local variety corresponding to the ab. *mendica;* this has on the forewing only two black cell-spots, an insignificant costal spot, traces of a submarginal band, the outer margin has no glossy border, both ocelli of the hindwing are reduced to black
magnus. points. Summit, South California, 2600 m. — Another large form of the species is **magnus** *Wright,* which is only slightly different from *behrii* in that the submarginal band of the forewing is almost complete but less sharply marked, and the glassy border is broader, extending to the hinder angle and less restricted by white marginal spots; hindwing in the type-specimen without anal and submarginal spots, the anterior ocellus very small, the posterior one also only moderately large, the latter with white pupil, the former entirely red; ♀ with costal spots copiously filled in with red and red-dotted hindmarginal spot on the forewing, blackish shading in the disc, border broadly glassy grey; ocelli of the hindwing large, the posterior one with white pupil, submarginal band not extra strongly marked, but the margin itself glassy. Enderby,
apricatus. British Columbia. — The most northerly representative of the species is **apricatus** *Stich.* (17 d); distinguished by the roundish shape of the wings and very strong black spotting; on the forewing the costal spots changed to a short band, in which there is an almost square red spot anteriorly; submarginal band sharply marhed, a large black spot in the hindmarginal area; on the hindwing the hindmarginal area broadly black, a small anal spot, the ocelli large and filled in with deep red, in the posterior one some white dusting. ♀ similarly marked to the ♂, somewhat dusted over with blackish, submarginal band of the forewing and the glossy border broader and complete, hindwing with broader submarginal band and blackish glossy border. In general very similar to the Asiatic *phoebus* forms. Kadiak Island (Alaska).

By older authors (Morris, Boisduval) *P. nomion Fisch. d. W.* is recorded from the Rocky Mountains and California, according to more recent accounts (Dyar, Wright) the species occurs in Alaska. However, a more certain confirmation of these records is wanting, and there appears to be a confusion with a form of *smintheus,* especially as regards the records of earlier date.

Alphabetical List

with references to the original descriptions of the forms of the American Papilionidae.

* signifies that the form is also figured in the place cited.

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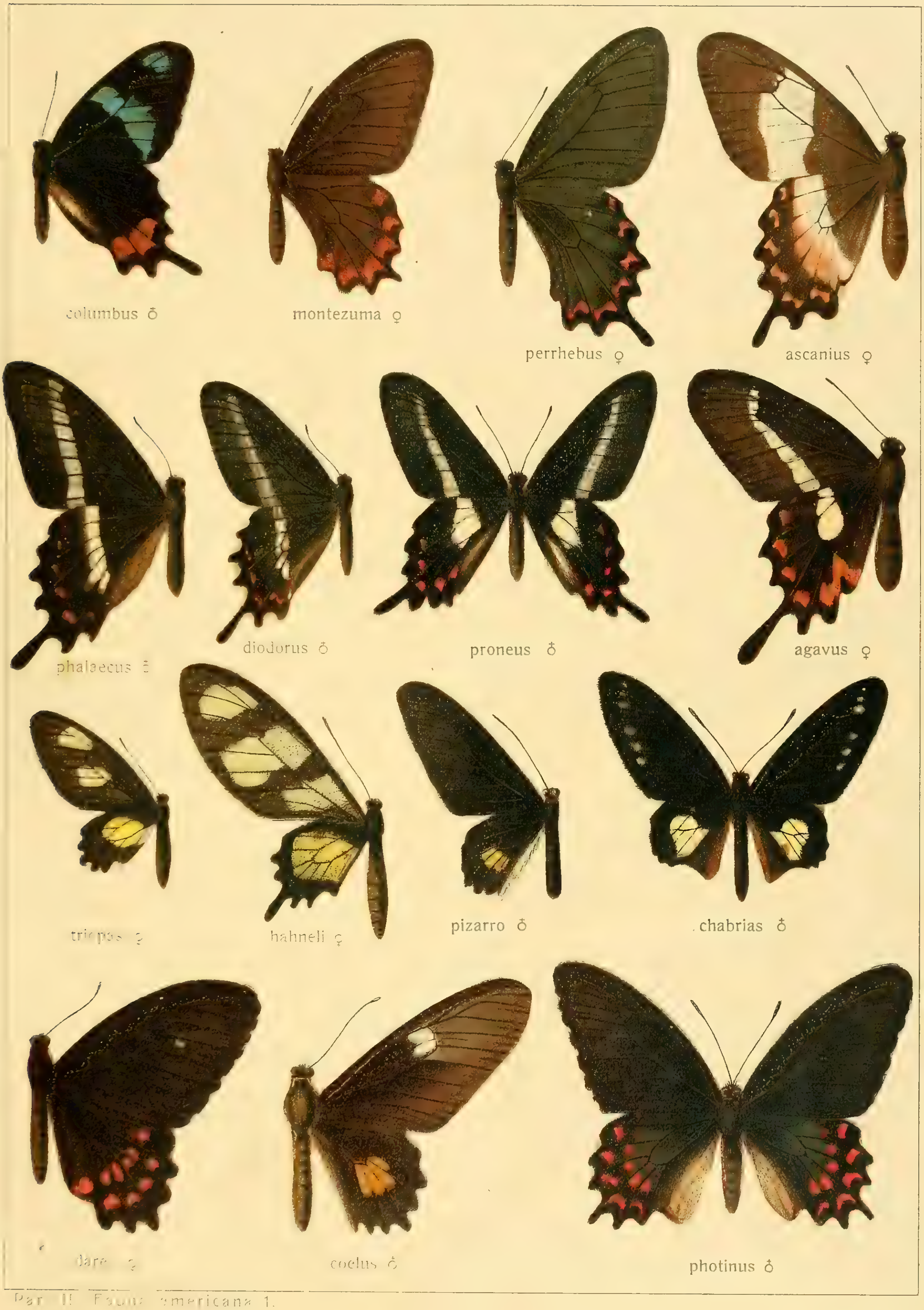
zalates Pap. *Godm. & Salv.* Biolog. Rhop. II, p. 233. *
zelicaon Pap. *Luc.* Guér. Rev. Zool. (2) 4, p. 136.
zestos Pap. *Gray.* Cat. Lep. Brit. Mus. 1, p. 47. *
zetes Pap. *Westw.* Trans. Ent. Soc. Lond, V, p. 36. *
zeuxis Pap. *Luc.* Guér. Rev. Zool. (2) 4, p. 190. P
zonaria Pap. *Btlr.* Cat. Diurn. Lep. Descr. Fabr., p. 240.
zoros Pap. *R. & J.* Nov. Zool. XIII, p. 729.

PAPILIO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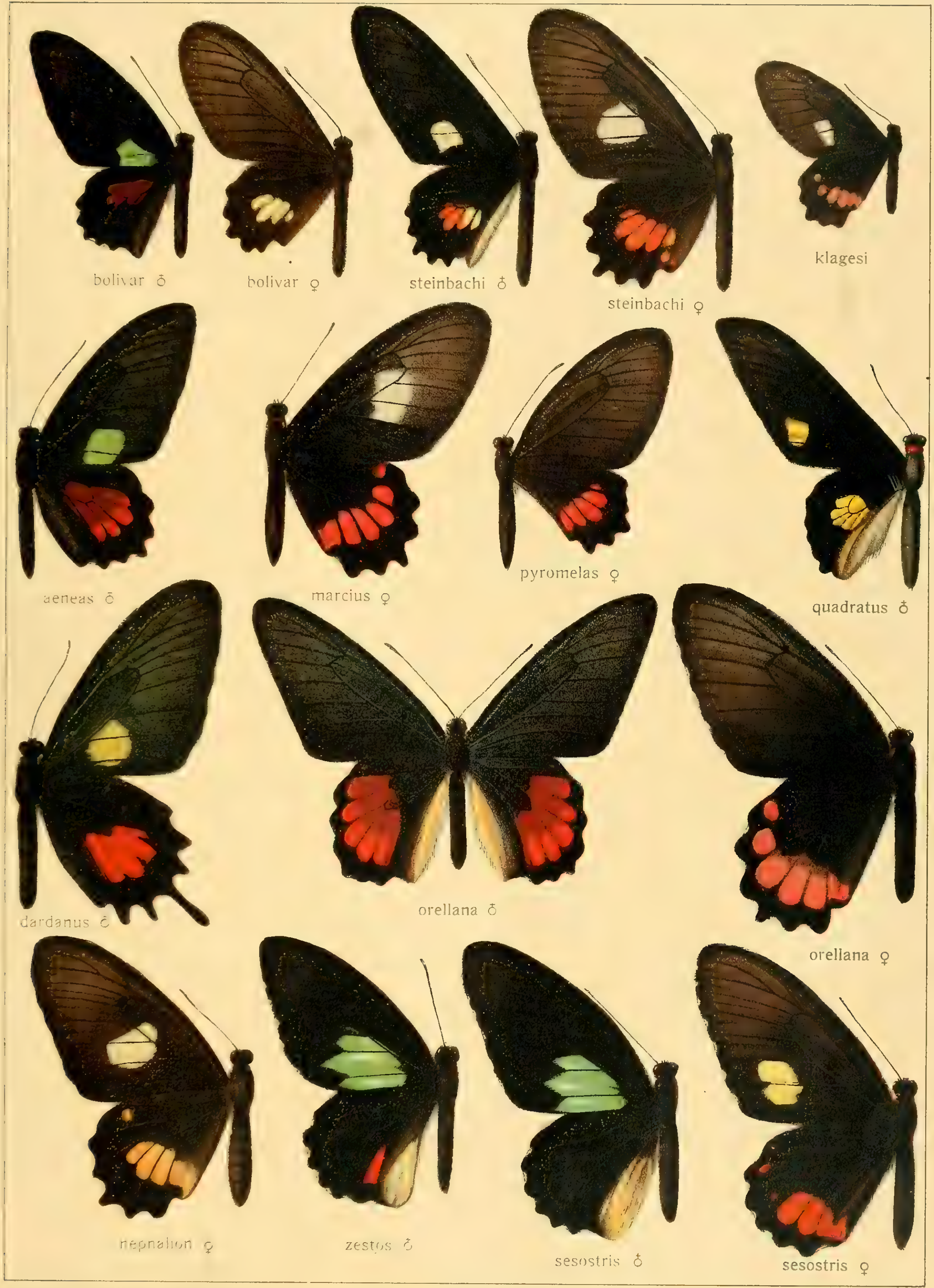
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klagesi
b
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quadratus ♂
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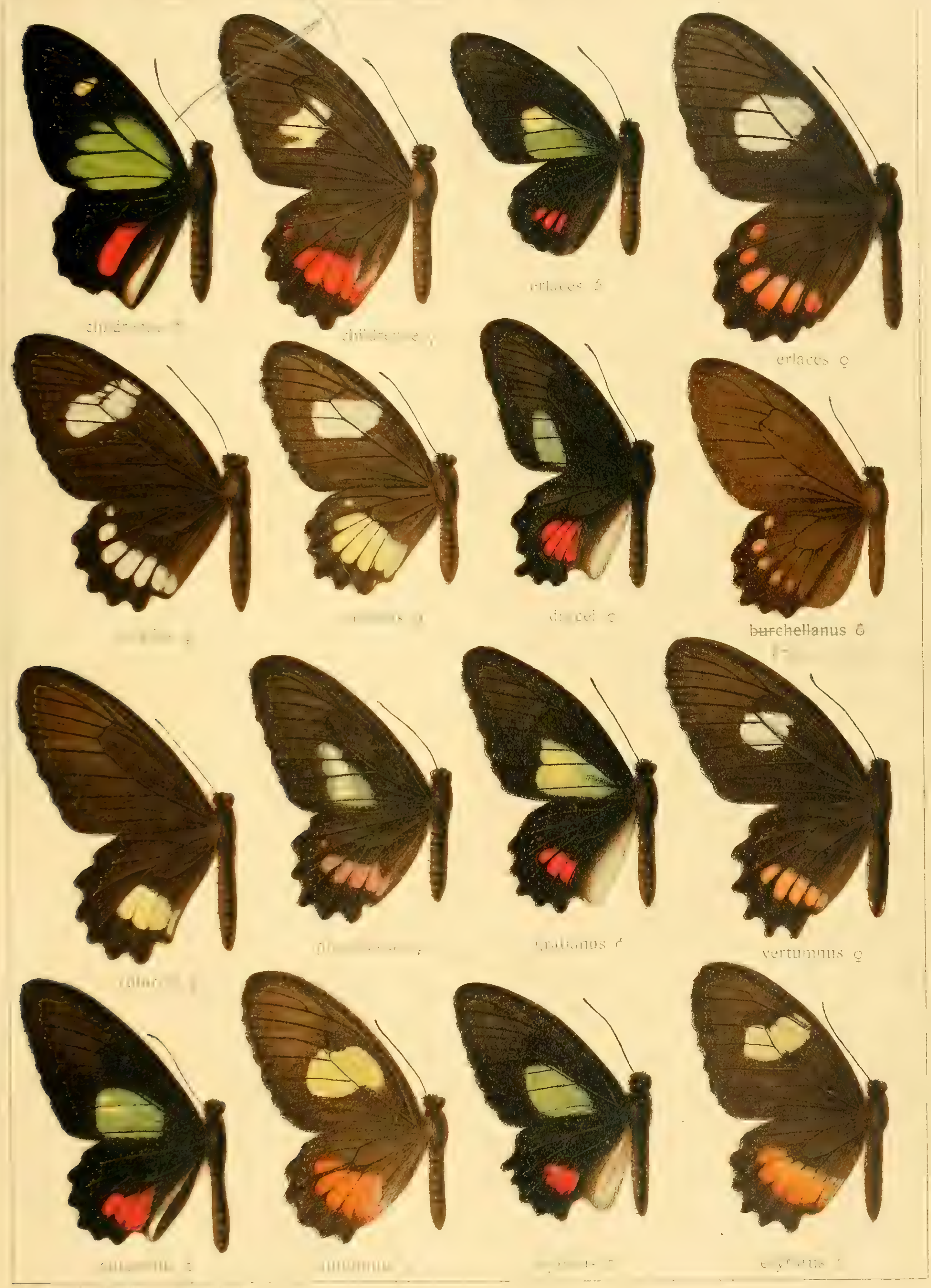
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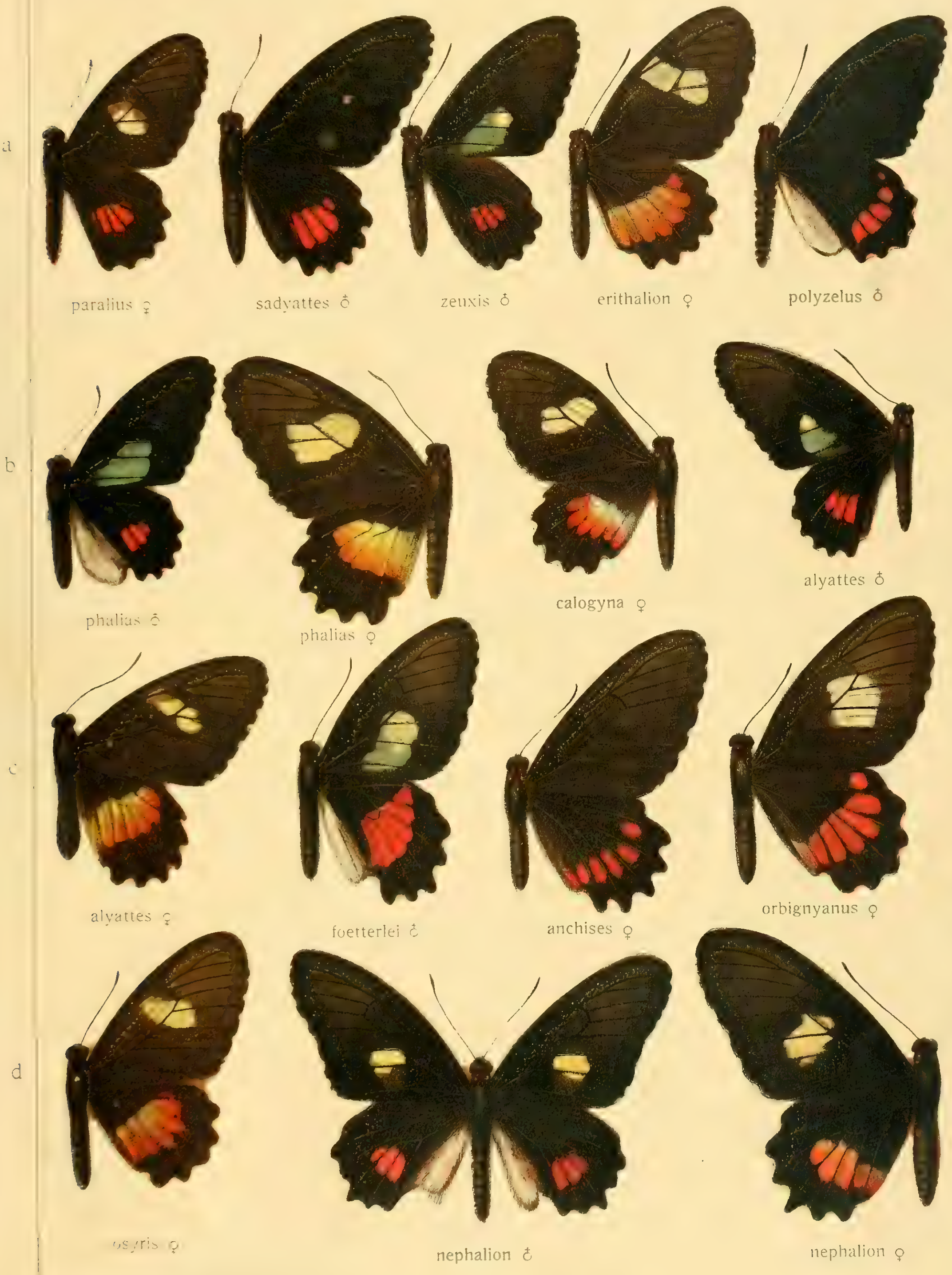
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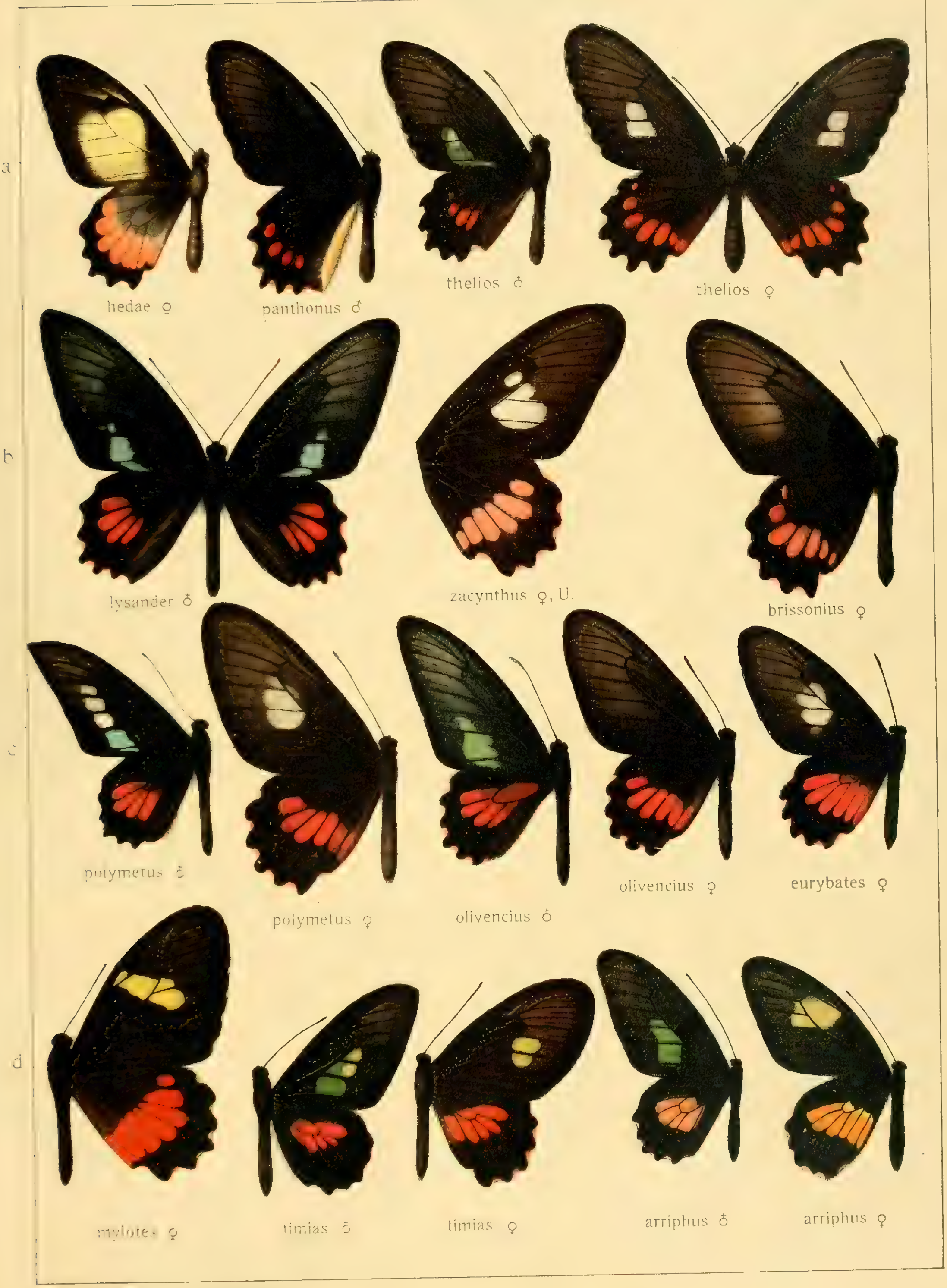
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polymetus ♀
olivencius ♂
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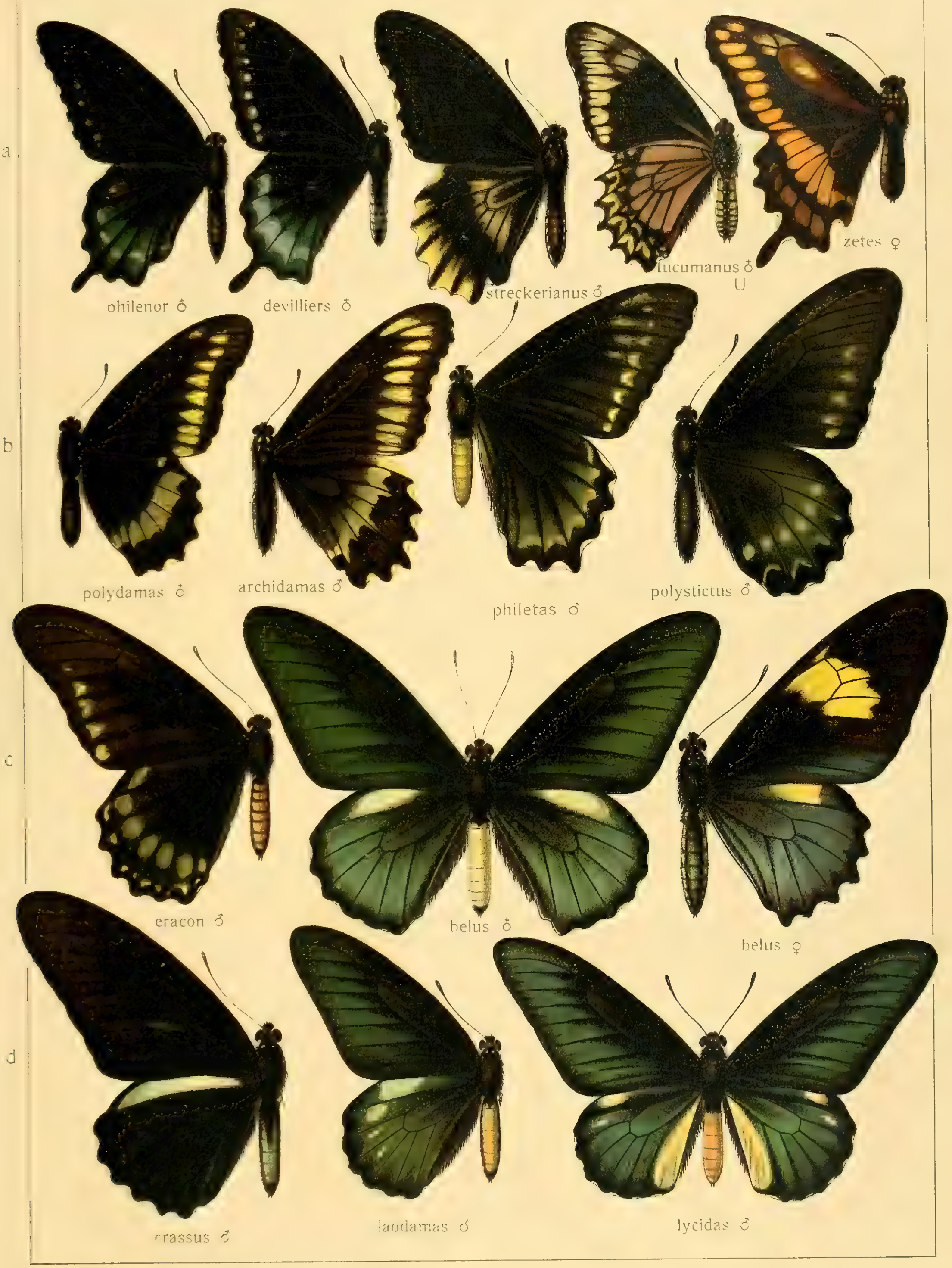
arriphus ♀

PAPILIO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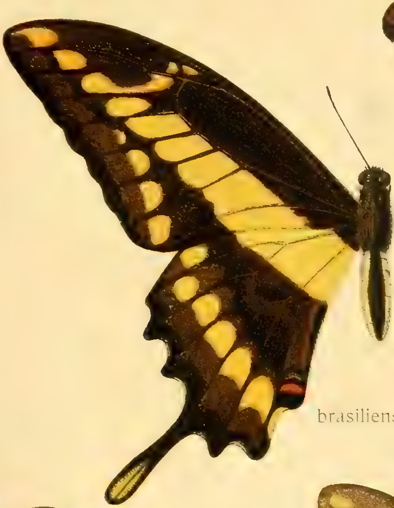
a



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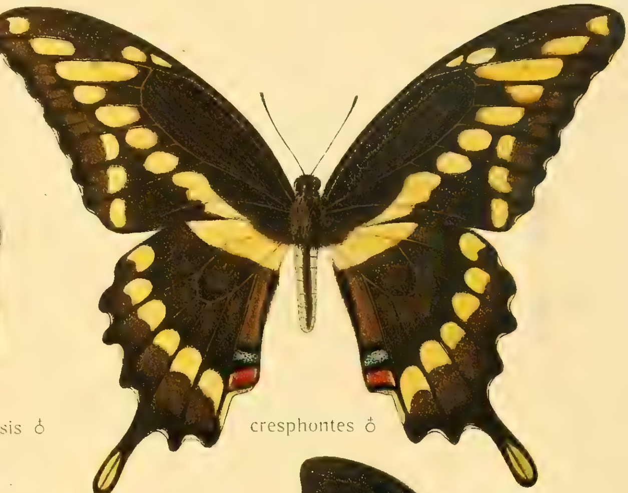

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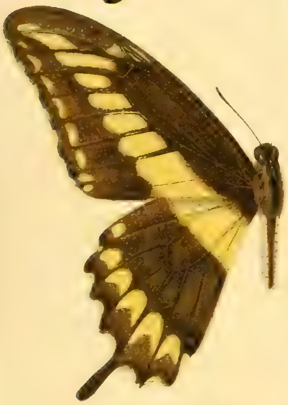

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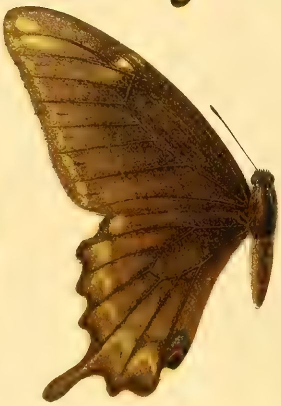

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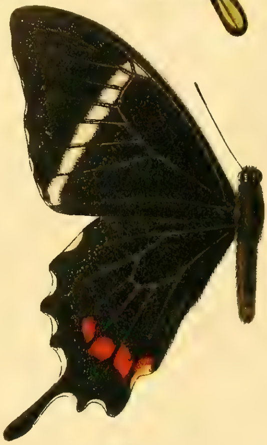

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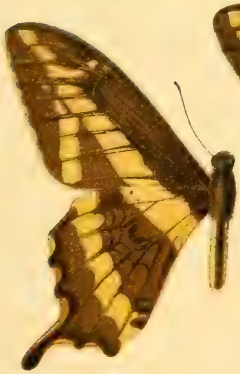

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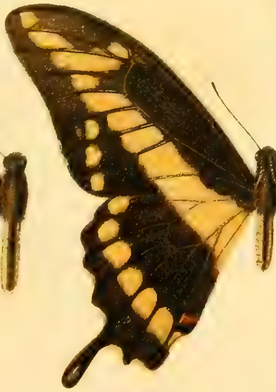

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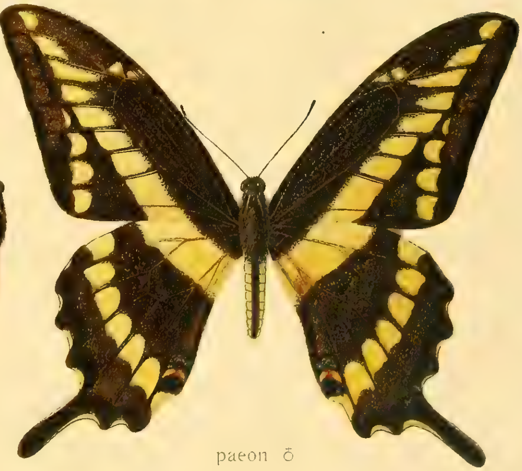

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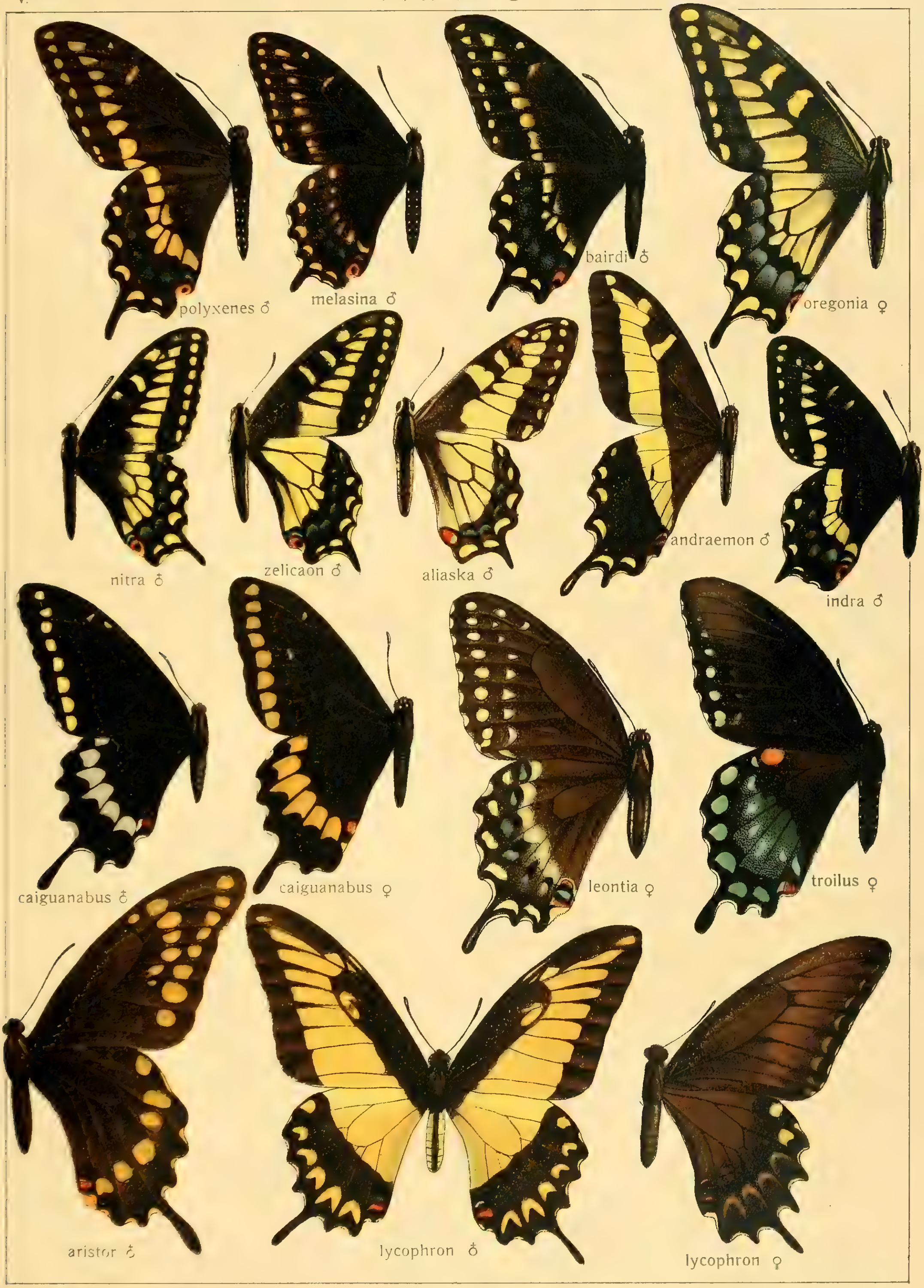
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c
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aristor ♂
lycophron ♂
lycophron ♀

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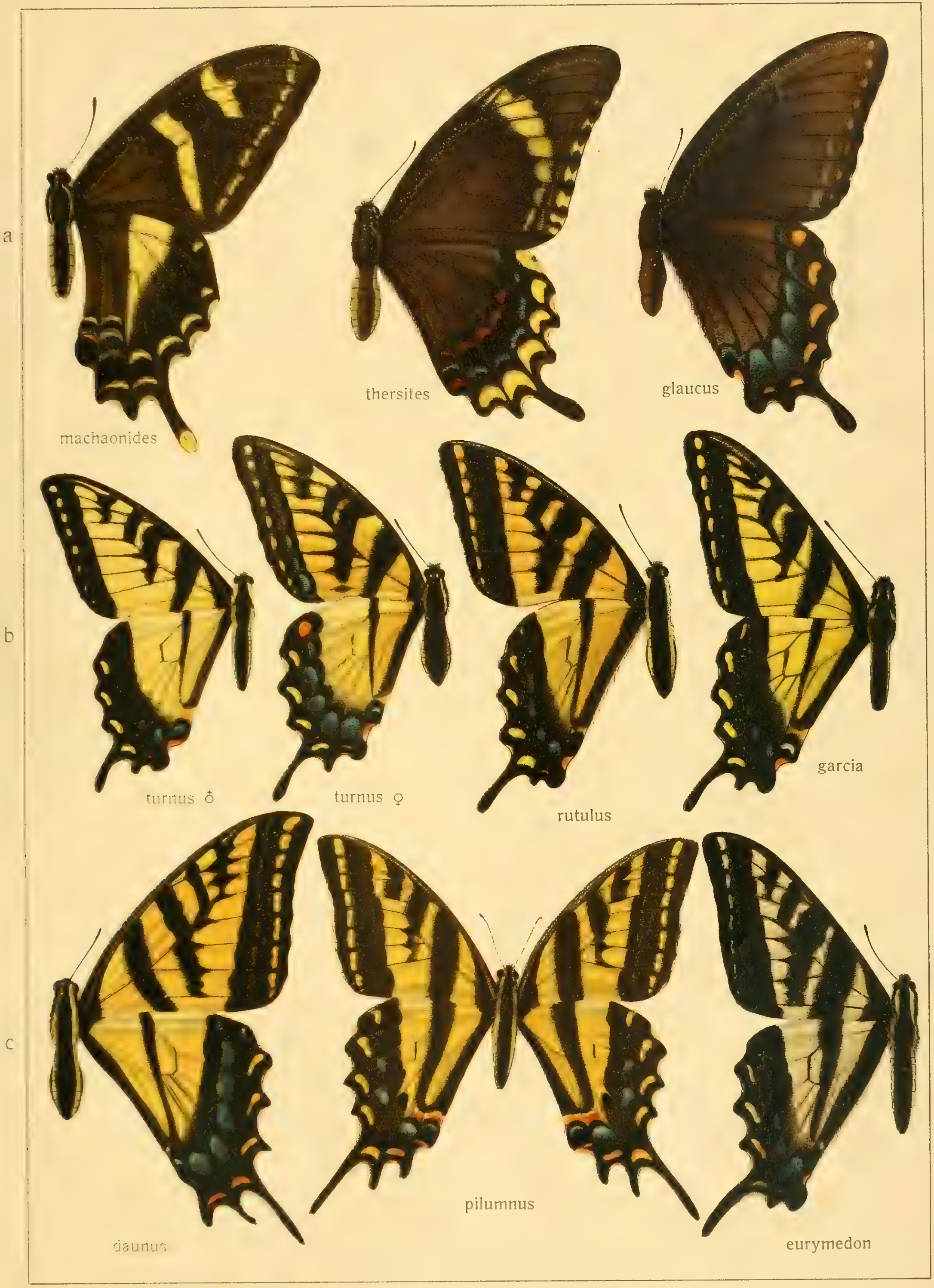
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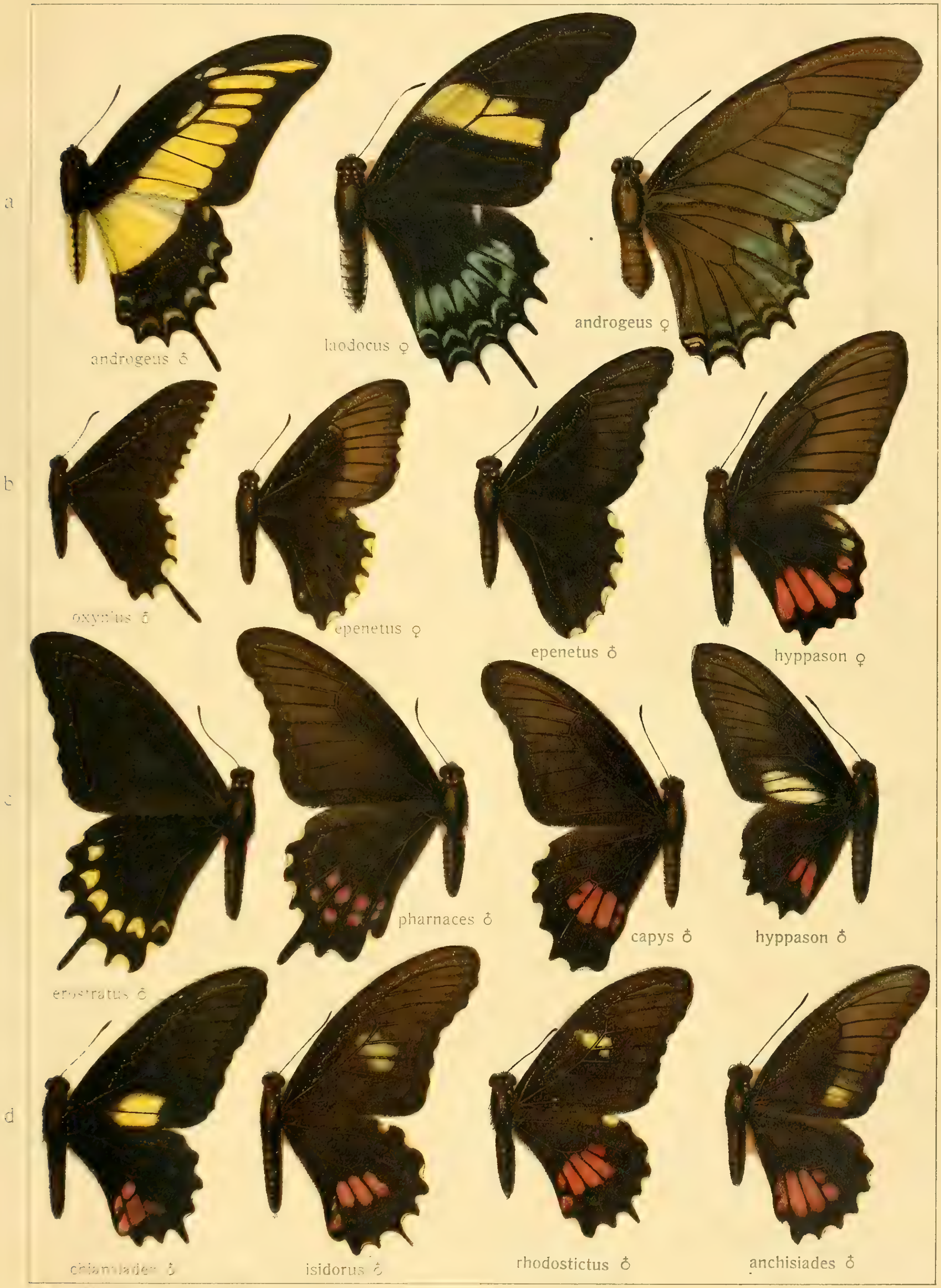
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anchisiades ♂

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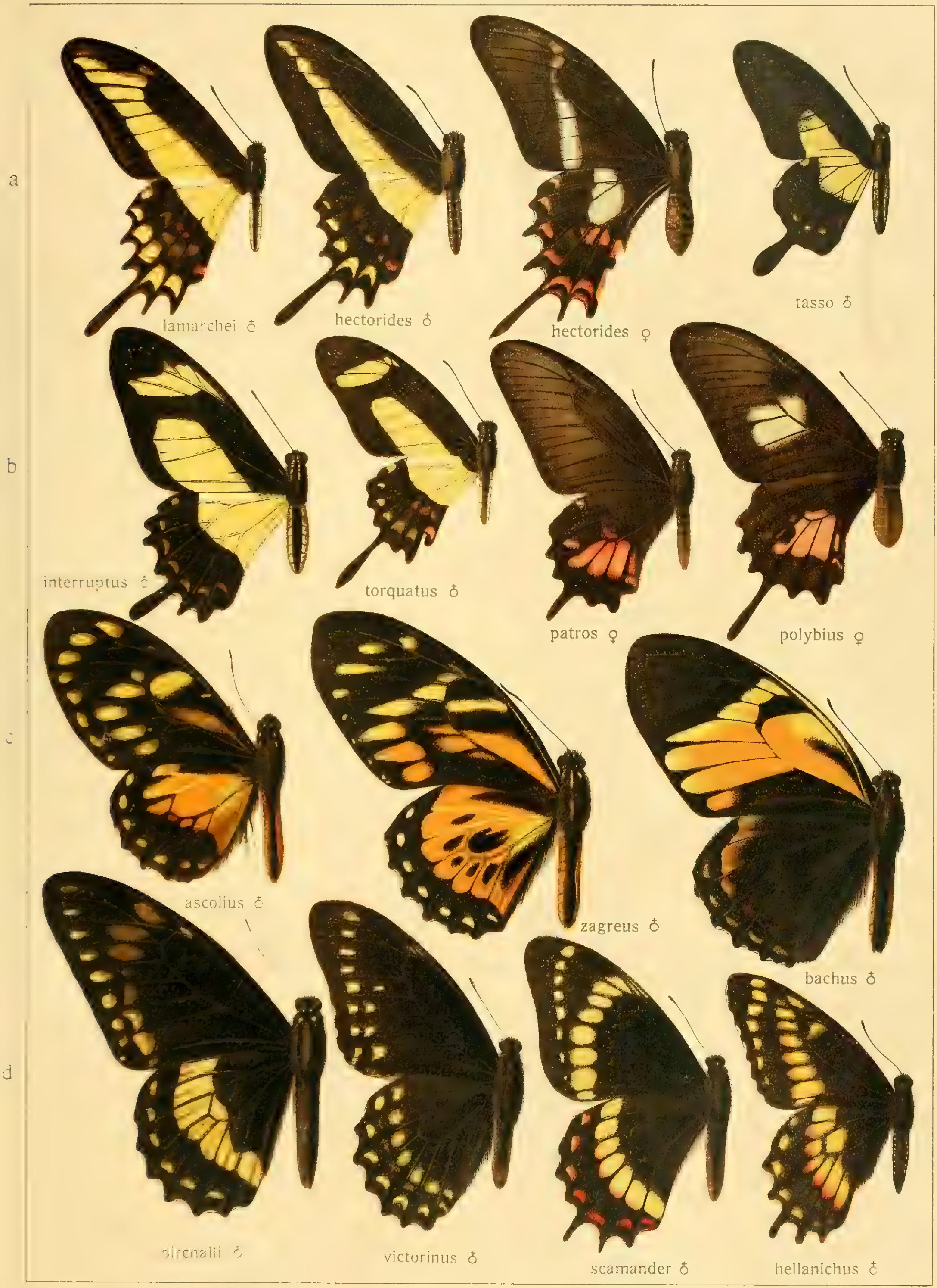
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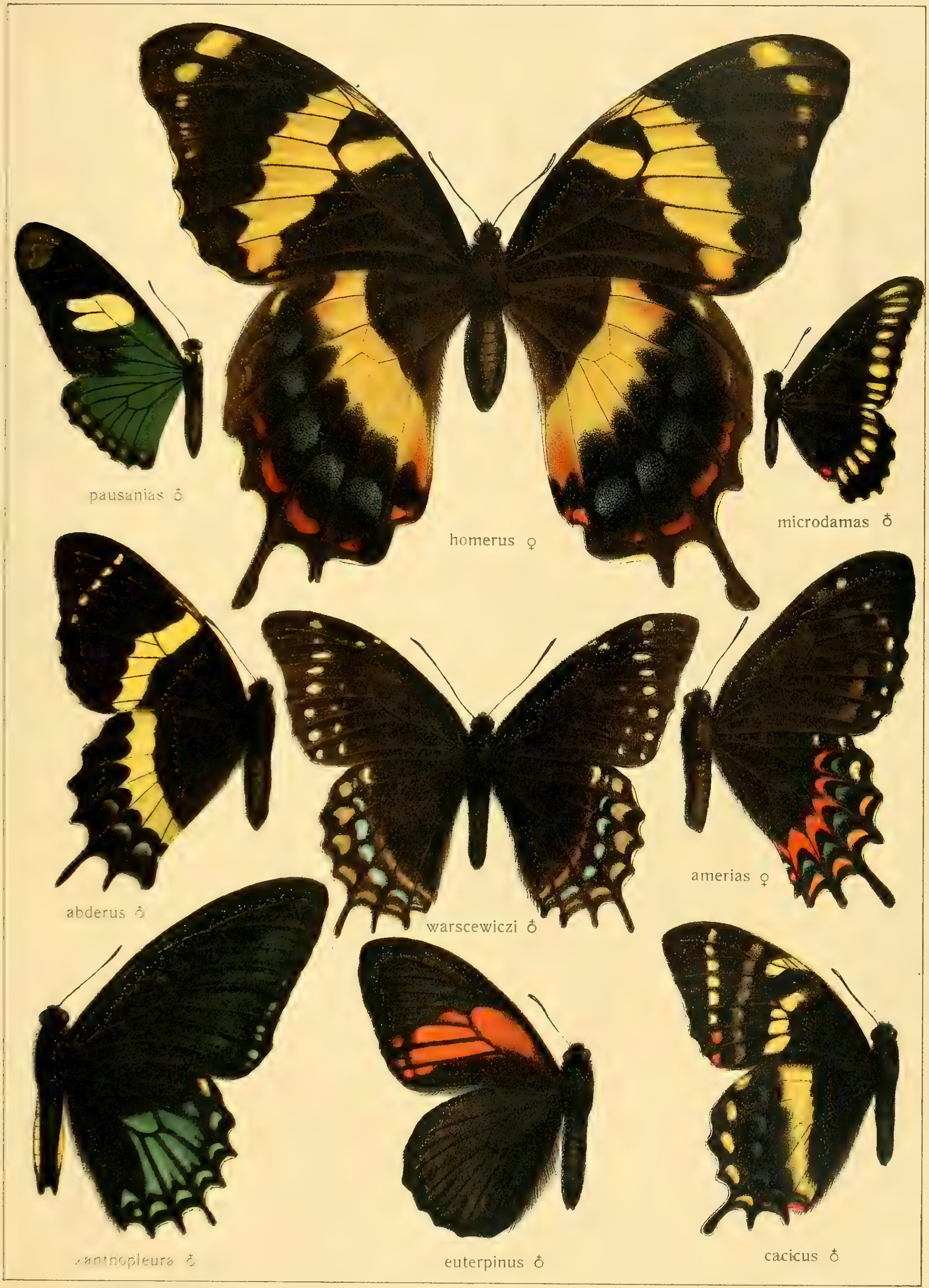
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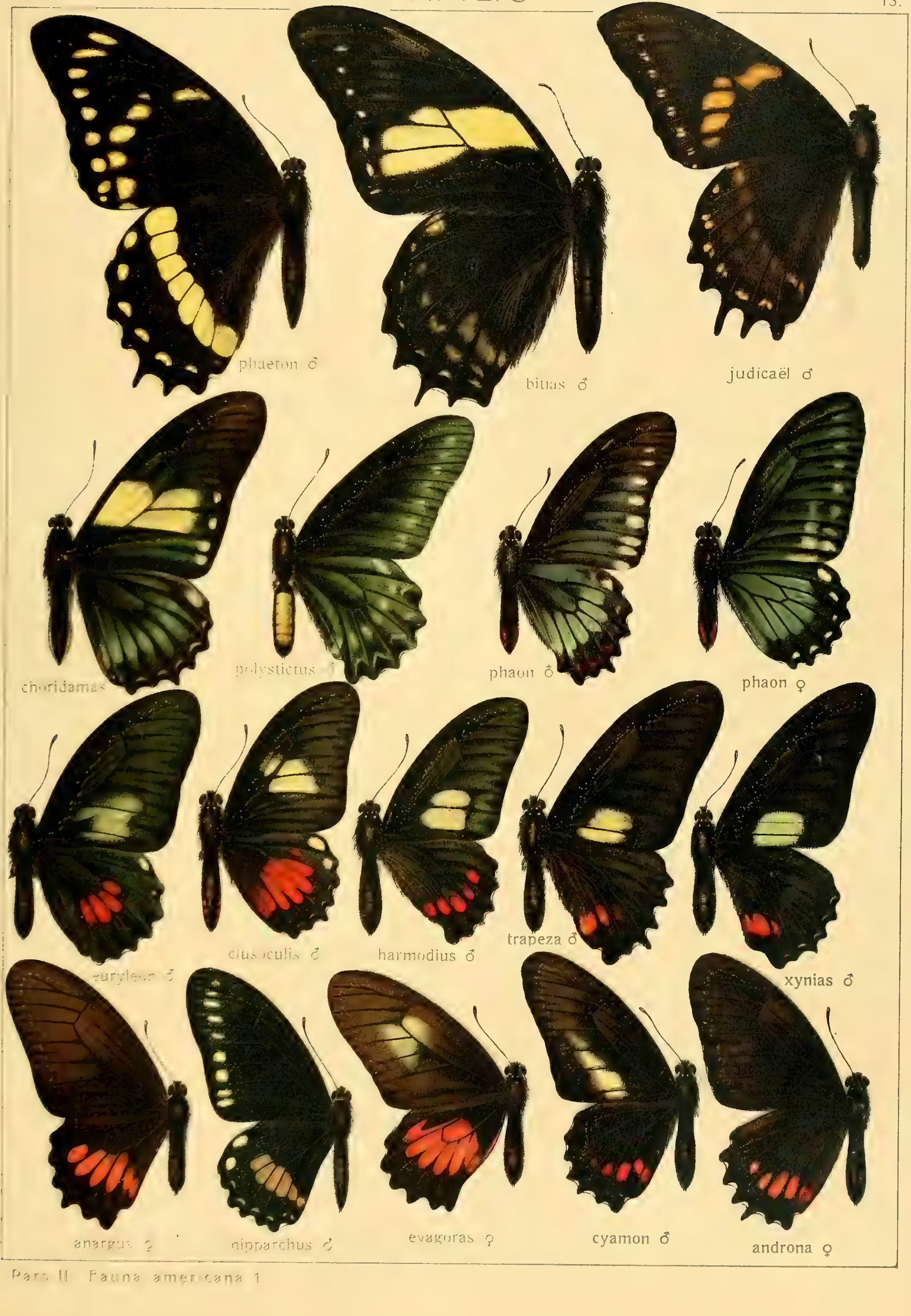
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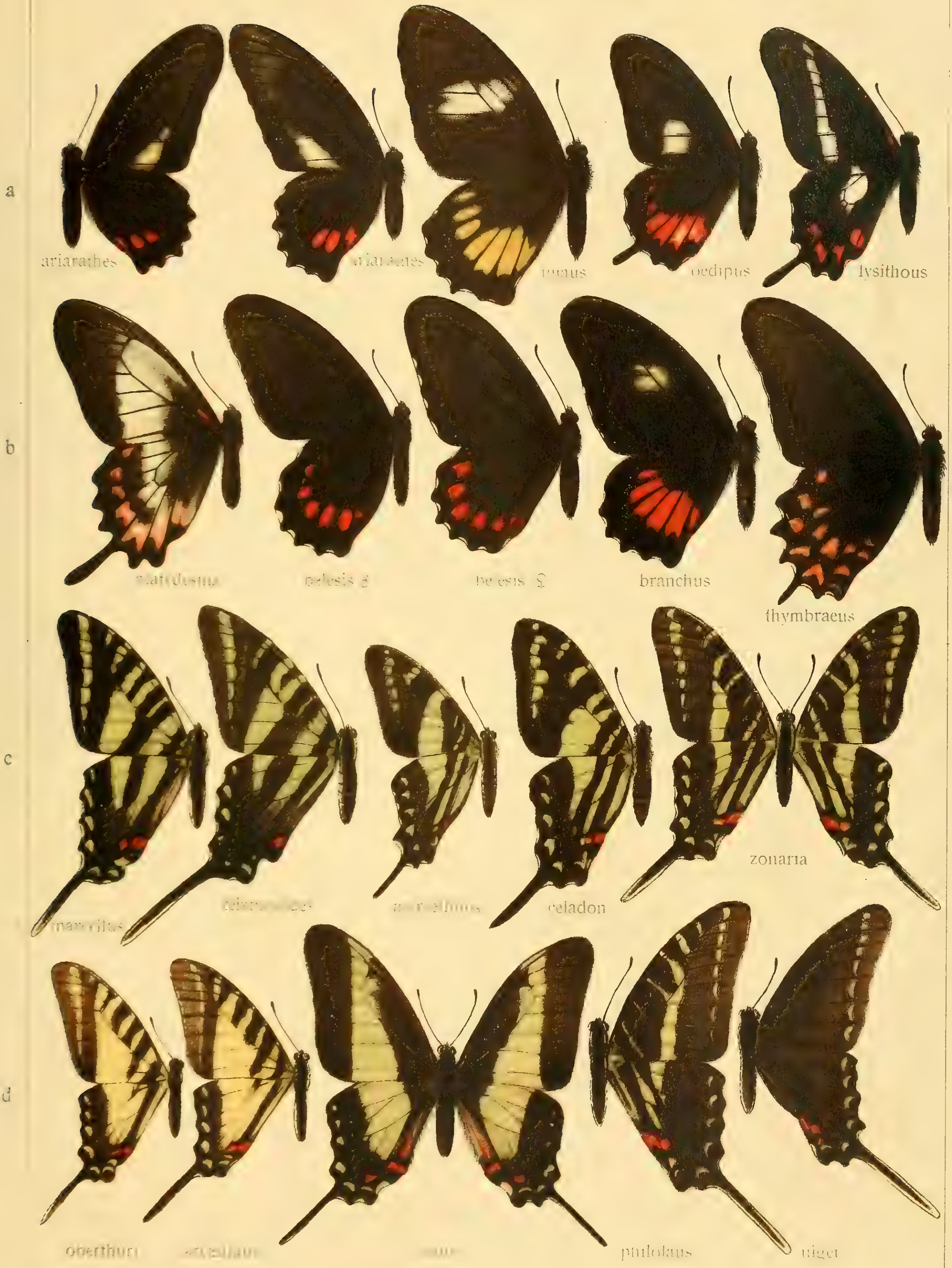
cyamon ♂
androna ♀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arcesilaus
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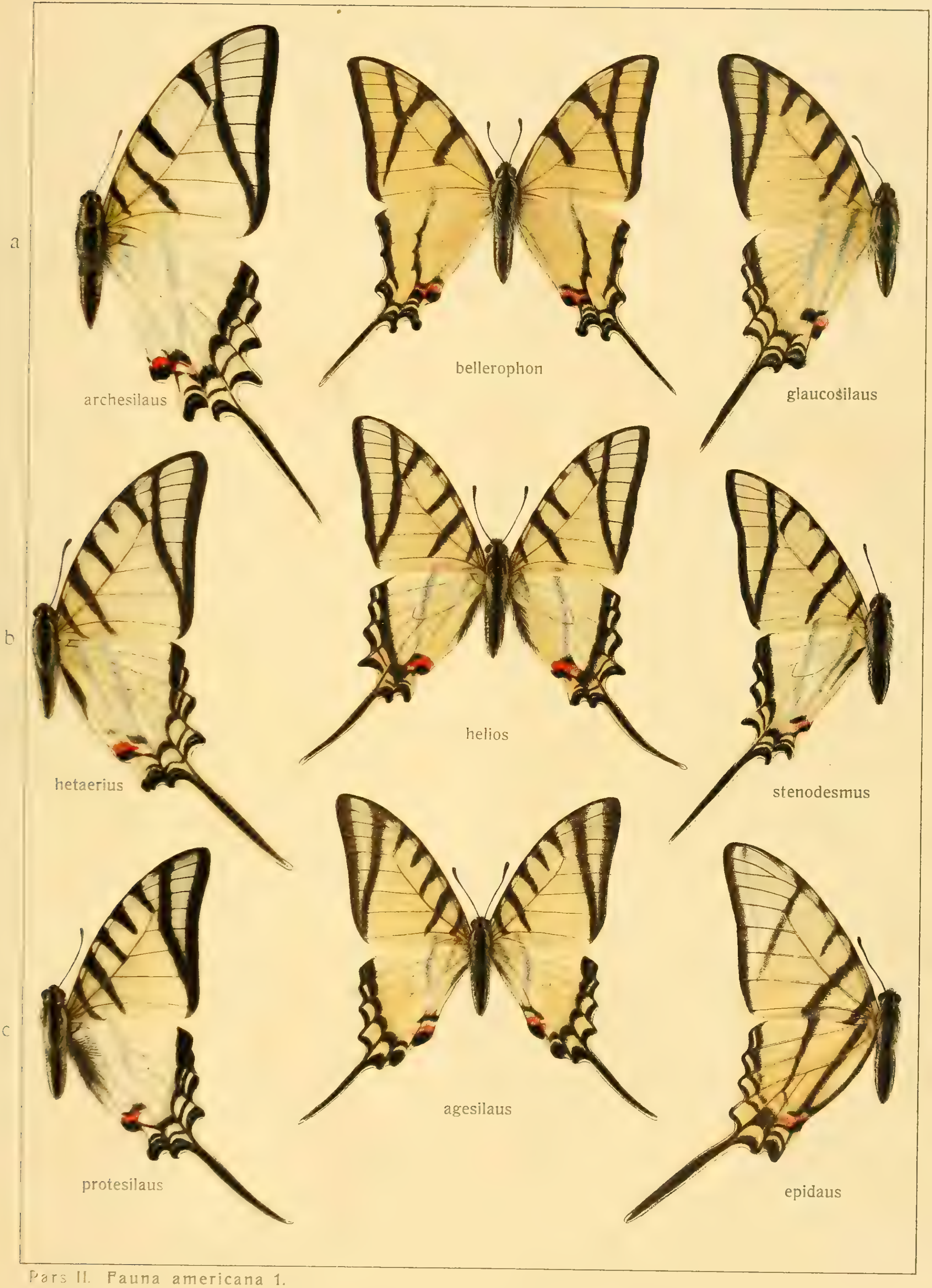
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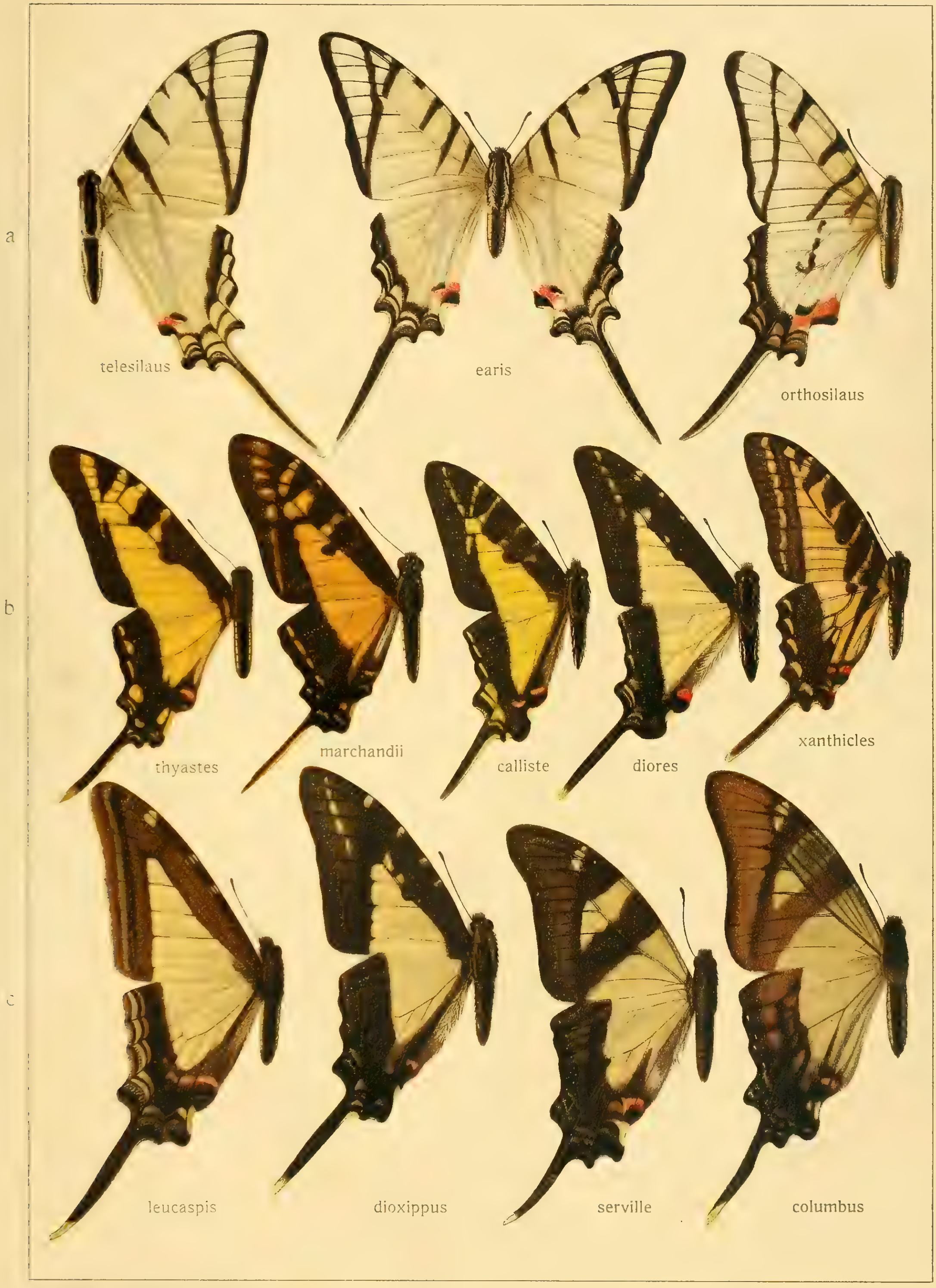
PAPILIO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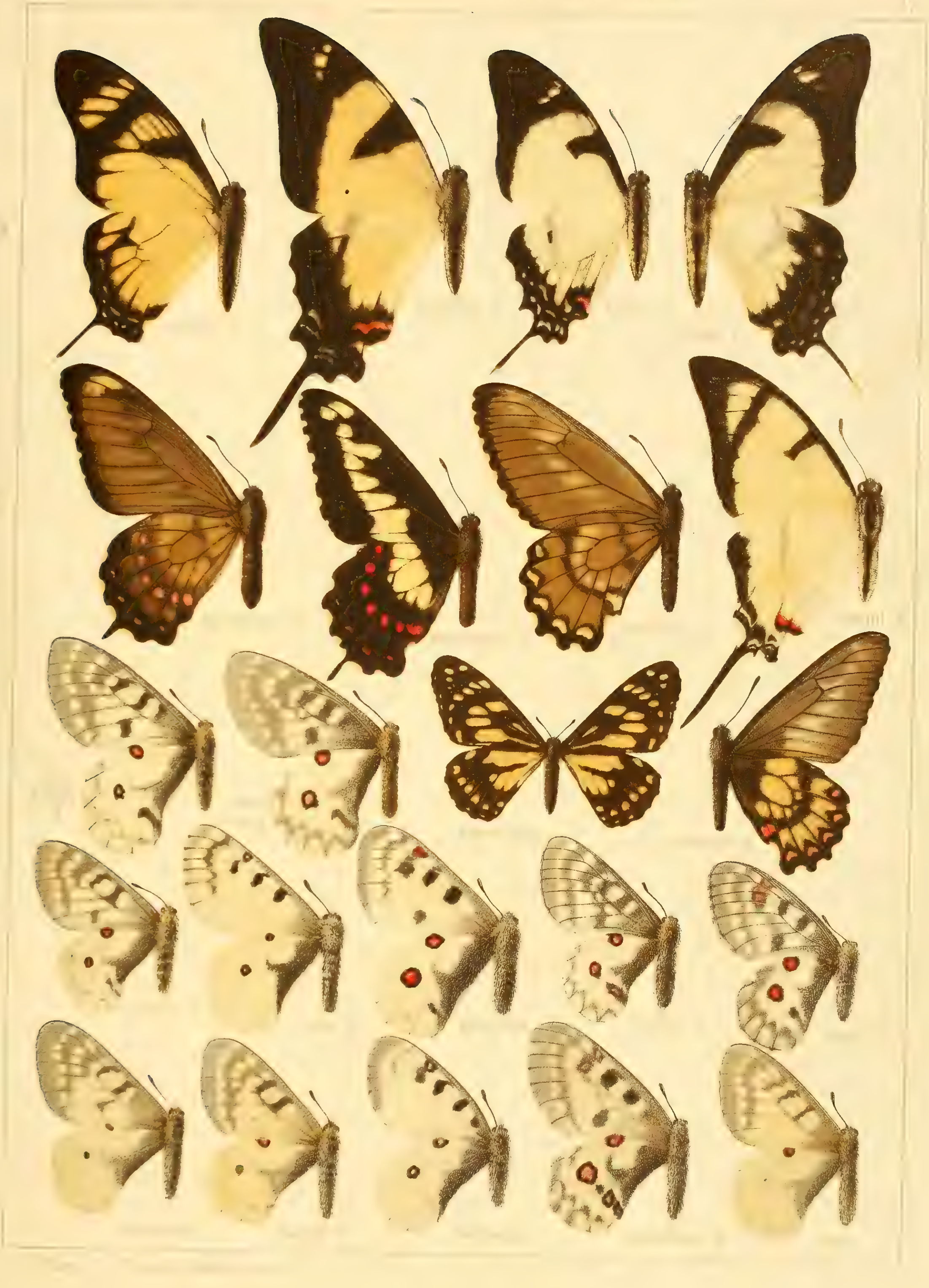

2. Family: **Pieridae**, Whites.

In comparison with the other faunistic regions, America shows a great abundance of genera. Of the 40 odd genera of Pierids represented in this region 28 have no representatives in other regions, whilst of the 23 Palaearctic genera only 12, of the 14 Indo-Australian only 4 and of the 13 African genera also only 4 are not represented in other faunistic regions. The American Pierid-fauna has consequently quite a character of its own, so much the more as several of the endemic genera are very rich in species and the species for the most part show a great abundance of individuals. Of the 28 American genera only one (*Neophasia*) is confined to North America (accepting the Tropic of Cancer as its southern boundary), and even this wears the garb of allied Palaearctic and Nearctic members of this family, whilst the remaining 27 genera are indigenous to South America. Of these again 3 genera inhabit exclusively the high mountain ranges, 1 genus (*Tatochila*) is principally met with in the southernmost part of the continent and 2 genera (*Sphaenogona* and *Enantia*) are island-dwellers. North America is relatively poor in species of Pierids, since it only possesses about 50, the Palaearctic Region on the contrary showing about three times as many. The whole of the genera which are represented in North America, but yet are not peculiar to this region, occur also in the Palaearctic Region, with one exception (*Nathalis*).

Although the great majority of the American species only belong to the medium-sized butterflies, yet the genera *Catopsilia*, *Amynthia* and *Gonepteryx* show also species which are not inferior in size to the largest forms of this family from other regions. Though there is no large number of species in America which equal in the beauty of the colour of the wings especially Oriental Pierids, the American Region is not wanting in strikingly beautiful forms.

Whilst the other faunistic regions can only show a very small number of Pierid-species which pass as so-called mimics (species of *Pareronia*), tropical and subtropical America possesses a great abundance of them, as for example numerous species of the genera *Dismorphia*, *Pereute* and *Archonias*, which show so-called mimicry in both sexes, whilst in the genus *Perrhybris* only the ♀♀ of some species exhibit this convergent development, the ♂♂ of only a few species having on the underside indications of a resemblance to protected species of other families. Not only these, however, but also species of the genera *Pieris*, *Tatochila*, *Dismorphia*, *Pereute*, *Hesperocharis*, *Appias*, *Terias*, *Catopsilia*, *Euchloë*, *Anthocharis* etc., show striking sexual dimorphism. Seasonal forms occur in North America much as in the Palaearctic Region, in the tropical part of South America on the contrary they are practically non-existent on account of the want of sesonal changes. Sharply defined local forms could only be developed to a very small extent owing to the geographical conditions of the region; on the other hand the high mountain-ranges of South America show a fauna of their own, whilst the large steppe-district in the most southerly part has some forms in common with the south of North America as well as a few endemic ones.

Most of the American Pierids are not rare, many are even very common, although in comparison with the richness in species and individuals of some other families of Lepidoptera they are not so conspicuous as in the Palaearctic Region. Frequently large swarms of different species have been observed, even of such as are by no means of common occurrence. Thus among others at the beginning of October 1874 on the Bermuda Islands an immense swarm of *Terias lisa* was observed, thousands of which fell victims to the birds: these small butterflies flew further westward and had to travel about 600 miles to the next resting-place (Cape Hatteras). The larvae of some species of Pierids on account of their abundant occurrence do serious damage to field and garden plants both in North and in tropical America; the north of the United States has a dangerous enemy to the pine-forests in *Neophasia menapia*, and *Pieris rapae*, which was introduced into North America about 1860, has increased to such an extent that it does even greater damage there than in its original habitat, the Palaearctic Region.

In general the Pierids are of medium size, but some species are large butterflies. The main character of the pattern consists in white colouring with dark, blackish stripes and spots; yet there are also, particularly among the Exotics, a large number of species which in the size of the wings and the gorgeousness of the colours equal the most beautiful forms of other families of Lepidoptera. In these brightly coloured species the contrast between upper and under surface is very striking. Whilst a large part of the species have on the whole the characteristic marking of the family (white-black), there are among the tropical species also many with yellow, blue, red or black ground-colour on the upperside, and on the other hand some with white upper, but variegated under surface. Thus the South American *Pereute*-species, with their black ground-colour and red bands on the forewing both above and beneath, completely belie their Pierid nature, and *Archonias critias* and allied species resemble the species of the *aeneas*-group of the South American Papilios.

Sexual dimorphism is well developed in many species from all the faunistic regions, seasonal dimorphism naturally only in those species which inhabit districts with sharply marked seasonal changes.

Antennae of varying lengths, e. g. in *Leptidia* rather short, in the South American genus *Leptophobia* on the contrary very long, the club clearly defined or gradually thickened. Forelegs normally developed, therefore capable of use, with bifid claws. Proboscis well developed. The butterflies feed at flowers and moist places on the ground. Palpi well developed, but variable. Male secondary sexual characters (seent-organs) occur in the species of several genera, e. g. in *Colias* as a specially scaled spot on the hindwing, in *Catopsilia* as broad patches of thick scaling, in *Appias* (*Tachyris*) as a pencil on the underside of the abdomen, in *Dismorphia* as large chalky spots of scales on the under surface of the forewing, from which the scent is given off by rubbing against the strongly widened anterior part of the hindwing. Other species (e. g. *Pieris brassicae* and its allies) possess feather-brush scales (Aurivillius), which are extended over the greater part of the wing and apparently are the cause of the suppression of the dark markings in the ♂♂, and other species again (e. g. *Pieris buniae* from South America) broad stripes of thick chalky scales along the veins.

The Pierids — like most *Rhopalocera* — are sun-loving insects, but, in common with a few other butterflies (mostly Satyrids), nevertheless extend into the Arctic, Antarctic and Alpine regions, without losing anything in brilliancy of colouring in comparison with allied genera from warmer districts. The high mountains of South America and the south-eastern boundary of the Palaearctic Region each even possess two genera quite peculiar to themselves, namely the former *Phulia* with about six species and *Andina* with one *Colias*-like species, and the latter *Mesapia* and *Baltia*, of which the last-named is very nearly allied to *Phulia*.

The Pierids are as a rule moderate fliers, but some also fly unusually swiftly (*Appias*) and others so slowly that they can be caught with the hand when on the wing (*Leucidia*). They occur in one or more generations.

The intellect is obviously very different in the various Pierids, for whilst for instance *Pieris brassicae* and the *Colias*-species are capable of very quickly recognising danger when pursued by the collector, this is much less to be observed in others (*Pieris napi* and *rapae*).

The swarming and migration of the butterflies, already referred to, have been regarded as nuptial flights; Catopsilias and *Pieris brassicae* especially have been observed to form such swarms.

The eggs are oblong, are laid in an upright position singly or in clusters, sometimes in large numbers, on the underside of the leaves of the food-plant, and are of different colours.

The larvae are cylindrical, mostly of green or greenish ground-colour with light longitudinal stripes and short hairs; none have yet been observed with spiny or such like processes. They do not possess the fork on the neck characteristic of the Papilionid larvae, which is said to afford the insects protection from their enemies by the emission of an unpleasant odour, neither has it been proved that — like many Papilionid larvae — they acquire poisonous or at least nauseous properties from their food; nevertheless they are not only unpalatable to birds, but is has also been observed that fowls which had been fed on these larvae died, evidently in consequence of a poison contained in their bodies. They live on various shrubs and herbaceous plants, such as Papilionaceae, Mimosas, Crucifers and Caparideae.

The pupa is attached to plants etc., by its abdomen, in an upright or hanging position, and is held in this position by a girth. Some are of very singular form, such as the tube-shaped pupae of the species of *Anthocharis;* but in general the Pierid pupae show few differences. The Palaearctic *Zegris eupheme* — and probably not only the other Palaearctic species (*Z. fausti*), but also the North American *Z. olympia* — pupates in a rather thick cocoon, but still possesses a remnant of the girth. This characteristic (recalling the »Bombycids«) is much more pronounced in the Mexican *Eucheira socialis.* The larvae of this species are gregarious and go out at night in a procession to feed. The common web hangs down from a bough, in the form of a pouch; the pupae are fastened in it head downwards (J. Aleman).

Some of the Pierids hibernate as pupae, some as larvae, and some — e. g. the Palaearctic *Gonepteryx*-species — as butterflies.

In the Palaeartic and Nearctic Regions the Pierids preponderate by their great number of individuals, in the tropics they are more restricted. Some Pierids have a very extensive range, thus *Pieris rapae* and *napi* occur in the whole Palaearctic and the Nearctic Regions, *Belenois mesentina* in the southern Palaearctic, Indian and African Regions.

Although — as already mentioned — the larvae do not appear to absorb poison from their food-plants, the butterflies are very little pursued by the birds, and are therefore apparently unpalatable to them or at least not much appreciated.

Several fossil Pierids have been found, which do not differ in size from the present-day species.

1. Genus: **Neophasia** *Behr.*

This genus is nearly allied to the Palaearctic *Aporia Hbn.* It differs principally in the direction of the precostal, which is not straight, but curved slightly inwards, the longer and slenderer palpi and the more distinctly clubbed antennae. The costal of the forewing only extends a little beyond the middle of the costal margin, the subcostal is four-branched with two branches before the closing nervure of the median cell, the third and faurth branches form a short fork and the third runs to the apex. The upper radial is coincident with the subcostal almost to one-half, hence the upper discocellular is wanting. The middle and lower discocellulars are about equal in length, the former is curved inwards, the latter is straight and closes the middle cell, joining the third median*) in an acute angle at its bend. The middle cell of the fore- as well as of the hindwing is rather narrow. The upper and middle discocellulars of the hindwing are about equal in length, and form together an almost straight line, the lower discocellular is longer, weaker, and meets the third median vein at the bend. Two purely North American species belong to this genus.

N. menapia *Fldr.* (= tau *Scudder*, ninonia *B.*) (18 a) is white above and beneath, thinly scaled, therefore somewhat transparent, the forewing has black markings at the apex and the anterior part of the distal margin, with white subapical spots, the costal margin is broadly black to the apex of the cell, also the discocellulars, the rest of the costal margin narrowly black. Hindwing almost without markings. On the similarly marked under surface of the forewing the black markings are paler, the veins of the dirty-white hindwing are black, there is also a submarginal band of the same colour. The ♀ has on the upperside paler black markings, some submarginal markings, and sometimes on the underside small red spots at the distal margin of the hindwing. — Egg flask-shaped, fluted at the sides. Full-grown larva about 25 mm. (1 inch) long, head cylindrical, abdomen terminating in two short tails, dark green with a broad white band at each side and a narrow white band on the back, abdominal legs black, thoracic legs greenish yellow. Pupa dark green, striped with white, similar to the *Colias*-pupae, but somewhat more slender. Larva on various conifers, sometimes so abundant as to cause considerable damage. In the north-west of the United States. *menapia.* ✓ 1

N. terlooii *Behr* (= epyaxa *Poling*, Archonias lyceas *Skinner*) (18 a) is very similar in pattern to *menapia*, but the black markings are more extended; the ♂ has white, the ♀ red-brown ground-colour. The larva lives in a common web on Arbutus. California. — **princetonia** *Poling*, from Illinois, is probably only a form of *terlooii.* In the ♂ both sides of the hindwing are sprinkled with pale red at the margin, the ♀ is deeper red beneath than above, and the veins are more broadly edged with black than in the ♀ of *menapia.* — From lack of material I have not been able to decide with cortainty whether this species belongs to this genus, but the agreement of the markings with *menapia* suggests a *Neophasia.* *terlooii.* 2 *princetonia.* 3

2. Genus: **Eucheira** *Westw.*

Although this genus differs essentially from the preceding in the neuration, yet it is closely allied to it in the life-history of the larva. The larvae live gregariously in a web, go out at night in a procession to feed, and pupate in the web with the head downwards. The subcostal of the forewing is entirely free, hence the cell is closed by three discocellulars. The cell is very narrow and long. Only one species.

E. socialis *Westw.* (18 a), from Mexico, is a smoky grey butterfly with a white central macular band; the ♂ has in addition more distinct white submarginal spots on the upper and under surface of both wings. *socialis.* ✓ 4

3. Genus: **Tatochila** *Btlr.*

This genus is almost confined to the southern part of South America and is closely allied to the following genus, *Pieris;* it differs from this in the shorter middle discocellular and the almost straight lower discocellular of the forewing, but principally in the uniform character of the markings. The species of this genus appear to occur only in one generation. The butterflies fly from November to April.

T. volxemi *Capr.* (= achamantis *Berg*) (18 a). Upper and under surface of the ♂ white with a large black spot on the discocellulars of the forewing and slight blackish markings at the apex of the forewing above and beneath. ♂ similar to the ♀ of *theodice Bl.*, but the marginal markings somewhat narrower, the submarginal markings on the contrary somewhat broader, also a black stripe in the cell of the hindwing. — Argentina. *volxemi.* 5

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*) What the author calls the „third median“ is really the third radial, there being three radial and two median branches in the butterfly-wing. — Transl.

6 *autodice.* **T. autodice** *Hbn.* (= demodice *Stgr.*) (18b), from the most southerly part of Brazil (Rio Grande do Sul), Argentina, Uruguay, Chile and Bolivia (3—4000 m), is differentiated from the following species chiefly by the yellowish red border of the eyes; markings and colouring are stronger on the underside. — The pupa, found by Dr. Seitz in Buenos Aires, is somewhat smaller than the pupa of *Pieris brassicae,* yellowish, with a number of minute dark spots, the spiracles appear as larger dark spots and there are similar dots also on the dorsum, the wing-cases are white, with a large dark spot at the discocellulars of the forewing, larger dark spots at the distal margin and numerous minute dark spots on the rest of the wings, the cases of the legs, palpi and eyes, at well as the thorax, are likewise dark (black-brown). The butterfly emerged on 22. February. The larva is apparently not yet known.

7 *mercedis.* **T. mercedis** *Eschsch.* (= polydice *Bl.,* autodice *Kirby,* autodice *Elw.*) (18b), from Chile, differs from *autodice,* in addition to the previously mentioned characteristics, in the purer white upper surface, the weakly marked under surface and the entire absence of the elliptical marking at the costal margin of the hindwing beneath. The ♀♀ have a more or less developed streak-shaped black spot at the inner margin of the forewing above.

8 *theodice.* **T. theodice** *Bdv.* (= blanchardii *Btlr.*) (18c), from Patagonia, Peru and Chile, is cream-white above in the ♂, light yellow in the ♀, particularly on the hindwing; it is the most distinct species in the genus. —
9 *gymnodice.* **gymnodice** *Stgr.,* from Punta Arenas (Tierra del Fuego), is probably a local form. Ground-colour of the ♂ pure white, the black markings somewhat narrower, underside of the hindwing without saffron-yellow stripes, only the basal part of the costal margin sulphur-yellow and a similarly coloured stripe at the apex. The ♀ has likewise narrower, but sharper black markings, the arrow-like spots on both wings are sharper and are connected. — Larva: head grey and covered with very fine, short hairs, body grey, with broad yellow subdorsal lines and a lateral row of small orange-red spots, and with raised black dots, sparsely scattered over the whole body, each with a very short, fine hair, ventral legs and underside of the body dark greenish yellow with small black spots, thoracic legs black. Food-plant: Tropeolum. Larva full-fed end of November (A. G. Butler). Flies from December to April.

10 *argyrodice.* **T. argyrodice** *Stgr.* (18a) is only known in the female. This species is well characterised by the grey ground-colouring and the sharply defined tear-shaped yellow spots of the under surface. South coast of Tierra del Fuego (Uschuaia).

11 *microdice.* **T. microdice** *Bl.* (= xanthodice *Mab.*), from Chile and Patagonia, is smaller and with less mark-
12 *macrodice.* ings, also beneath a paler colour than **macrodice** *Stgr.* (18c, d), from Bolivia. — **sterodice** *Stgr.,* from the
13 *sterodice.* east coast of Tierra del Fuego, is differentiated from this latter by a complete absence of yellow markings on the under surface, it is also white, almost without markings on the upper surface of the ♂, which is strongly glossy in the basal half. The ♀ has not a trace of yellow on the upper surface, whilst the markings
14 *arctodice.* are similar to those of the ♀ of *microdice.* — **arctodice** *Stgr.* occurs in Colombia and Ecuador. This form is very strongly marked with black, especially in the female; the upper surface of the ♀♀ is principally brown-black (with yellow spots).

15 *pyrrhomma.* **T. pyrrhomma** *spec. nov.* (18d), from Peru (Huancabamba, 3000 m), may be regarded as a distinct species on account of several important differences. The eyes are broadly (more broadly than in *autodice*) edged with fiery red-yellow, the black stripe at the costal margin of the forewing above extends to the base, the black spot on the discocellulars is distinctly smaller, the black marginal and submarginal markings are less developed, the latter almost square, the upper surface of the hindwing entirely without markings and strongly yellowish on account of the yellow colour of the under surface shining through. On the underside the veins are more broadly white, their margins more broadly grey-black than in *microdice,* the lower discocellular of the hindwing without white spot, the grey-black stripe in the cell very narrow and forked distally, besides the very sharply defined and broader saffron-yellow stripe at the costal margin there is also a similar one between the submedian and the first median. The under surface of the forewing is white, the veins are very finely black, those in the apex sharply white and very narrowly edged with black, the black spot at the end of the cell is small, the sulphur-yellow colouring of the apex reaches to the second median, and submarginal markings are completely wanting on both wings. ♂ unknown.

16 *xanthodice.* **T. xanthodice** *Luc.* (18d), from Venezuela, Colombia, Ecuador, Peru, Bolivia and Argentina, differs from *microdice* and *argyrodice* on the under surface chiefly in the saffron-yellow stripes betwen the veins of the hindwing, from *microdice* also in the absence of the white spot on the discocellulars on the underside of the hindwing. On the under surface the apex of the forewing has saffron-yellow stripes and the anterior veins are sharply edged with black to the apex of the cell.

17 *demodice.* **T. demodice** *Bl.,* from Chile, South Patagonia and Tierra del Fuego, is distinguished from the following form by the absence of the arrow-spots on both wings. It must be noticed that according to

Blanchard's insufficient description the name *demodice* cannot be employed with certainty for this species.
I have seen no specimens which agree with this description, which may be translated thus: "Wings of the ♂
above white, of the ♀ yellow-blackish, in both sexes marginal spots, a row of arrow-spots and a black dis-
coidal half-band; beneath the forewing yellowish at the apex, the hindwing entirely yellow, veins margined
with black, gold-yellow lines — 20—21 lines." — **sagittata** *form. nov., spec. nov.?* (18 e), from Peru (Huanca- *sagittata.* 18
bamba, 3000 m.), differs from this supposed *demodice* by the markings of the hindwing (shown in the figure),
and further by the presence of four black submarginal arrow-spots on the forewing beneath, as well as by
the colouring and pattern of the underside of the hindwing. The latter has a light yellow ground-colour, the
veins themselves are very narrowly light, but edged with blackish about as broadly as in *orthodice*, there is
a similar stripe in the cell, which shows no small white spot on the discocellular, between all the veins are
saffron-yellow stripes and at the distal margin four very pointed blackish arrow-spots; at the distal margin
there is an almost uninterrupted fine black marginal line, such as occurs in no other species of this genus.
Underside of the forewing white, the veins becoming more broadly black towards the margin, the discocel-
lulars not broadly margined with black, four submarginal arrow-spots, apex of both wings light yellow.
♀ unknown.

(194a)

T. stigmadice *Stgr.*, from Bolivia (Cocapata, 3500 m.), differs from *immaculata* here figured by the *stigmadice.* 19
much broader black spot on the discocellular and by the presence of 4—5 triangular black submarginal
spots on the forewing and 2—5 of such spots on the hindwing, as well as the saffron-yellow colouring of
the hindwing. — In **immaculata** *form. nov.* (18 e), from the province of Tucuman in Argentina, the sub- *immaculata.* 20
marginal markings are completely absent above and beneath; the under surface of the forewing is white
with small yellow stripes in the apex, the veins are narrowly black, the black line on the discocellular is
not widened; the hindwing is yellowish white, with bright yellow, sharply defined narrow stripes between
all the veins and at the costal margin, the veins themselves are very finely light, being narrowly edged with
grey-black, a similar stripe, indistinctly forked at the discal end, is placed in the cell, the discocellular is
light like the ground-colour. ♀ yellowish, veins rather broadly dark, with submarginal arrow-spots on the
forewing and more distinct ones on the hindwing.

T. orthodice *Weym.* (18 e), from the high mountains of Bolivia, has a white upper surface with the *orthodice.* 21
markings as shown in the figure. Under surface of the forewing white with yellowish apex, in which the
white veins are dark-edged. Under surface of the hindwing sulphur-yellow, the veins broadly white, dark-
edged, saffron-yellow stripes at the costal and hindmargins, as well as in the cell, which has likewise a black-
ish stripe. ♀ unknown.

4. Genus: **Pieris** *Schrk.*

This genus, distributed over the whole world, is considered as the typical representative of the family. The subcostal of the forewing is four-branched with 2 branches before the apex of the cell, the third branch is very short and runs into the costal margin shortly before the apex, the cell is large, not over broad, and is closed by 2 discocellulars; the upper discocellular is wanting because the upper radial is coincident with the subcostal for some distance. The precostal of the hindwing branches off from the costal almost at right angles and its pointed apex is curved distad. The costal margin of the forewing is smooth, the antennae have in general a distinct club and are mostly of medium length, very long in some species, the palpi mostly project beyond the head and are densely covered with stiff hairs in front, the end segment is as long as or longer than the middle segment, slender and pointed, the middle segment is but little shorter than the weakly curved basal segment. The larva is cylindrical, with very short hairs, and has light longitudinal stripes. Pupa moderately slender, with obtuse tip to the head and several small protuberances on the dorsum, sometimes with the wing-cases somewhat more produced. The species which belong here have probably all of them at least two broods, one of which in the temperate zones hibernates in the pupa.

P. monuste *L.* (= hippomonuste *Hbn.*, feronia *Stph.*, phileta *F.*, albusta *Sepp*) occurs in several *monuste.* 22
forms from the south of North America (the Gulf states) to Argentina, also in the mountains of the west.
The form from Surinam may be regarded as the nymotype of the species. — **orseis** *Godt.* (18 e, f), from *orseis.* 23
the southern states of Brazil, has the margin more broadly black with white apical spots, the ♀ mostly with
yellowish ground-colour, especially on the hindwing, on the latter also rather large pointed black marginal
spots. **cleomes** *Bdv.*, from the south of North America, is somewhat smaller and less blackly marked. — *cleomes.* 24
virginia *Godt.* (= ♀ eubotea *Godt.?*) is the form from the Antilles. — Of **evonina** *Bdv.*, from Cuba, 3 forms *virginia.* 25
are described: **evonina** with greenish white colouring of the ♂, marginal marking narrow, reddish, brown; *evonina.* 26
underside at the apex of the forewing pale and dirty ochre-yellow, hindwing of the same colour, without
spots; **valei** *Bdv.*, upper surface white, marginal pattern narrow, black and dentate; under surface of the *valei.* 27
forewing brownish, of the hindwing whitish, faintly ochre-yellow; **joppe** *Bdv.*, smaller than *monuste*, above *joppe.* 28
dull white, marginal pattern dark brown, a black spot at the apex of the cell. — **automate** *Burm.*, from *automate.* 29
Argentina, has only small blackish markings at the apex and the distal margin of the forewing. — **suasa** *suasa.* 30

Bdv., from Chile, Peru and Bolivia, has somewhat more black markings than *autodice*. Larva violet, with citron-yellow longitudinal bands, head, legs and underside greenish yellow. Pupa pale yellowish, with blackish dots, a small hump on the middle of the dorsum. Lives on Cleome pentaphylla and other allied plants and causes the same damage to agriculture and horticulture as *brassicae* and *rapae* in the Palaearctic Region.

31 *sevata.* **P. sevata** *Fldr.* (18 f), from Colombia, Venezuela and Central America, is similar to *monuste*, but is
distinguished from it by a broad layer of scent-scales along almost all the longitudinal veins of the forewing
and also two veins of the hindwing. The under surface of the ♂ is yellowish white, the apex of the fore-
wing somewhat darker yellow, the costal margin of the hindwing narrowly edged with ochre-yellow. — In
32 *tiburtia.* **tiburtia** *Fruhst.*, from Guatemala, the black apical spot has almost entirely disappeared and the black median
spot is reduced, apex of the forewing beneath yellowish white, hindwing beneath with more vivid gloss,
33 *timotina.* rose-coloured instead of yellowish, veins not suffused with black. — **timotina** *Fruhst.*, from Peru, is larger,
with broader and more extended black margin, which is deeply dentate, a large black median spot, under
34 *amphissa.* surface darker, median spot sharper and the veins more distinctly streaked with brown. — **amphissa** *Fruhst.*,
from Bolivia, is smaller than *tiburtia*, upperside yellowish white, entirely without markings, only the costal
margin of the forewing lightly suffused with brown, without median spot, underside of the forewing white
with yellowish apex and brown median spot, hindwing uniform pale yellowish white with orange-coloured
basal spot.

35 *sincera.* **P. sincera** *Weym.* (18 f), from Ecuador (Guayaquil), is greenish white above with black apical and distal-marginal area on the forewing as well as very small black marginal markings on the hindwing. The underside is lighter and without markings except a yellow stripe at the costal margin of the hindwing.

36 *buniae.* **P. buniae** *Hbn.* (= endeis *Godt.*) (19 a) is the giant of the American species of *Pieris*. From this
37 *ausia.* form, which occurs in the central provinces of Brazil, **ausia** *Bdv.*, from the southern provinces, is distinguished
by a somewhat more extensive development of the black markings, which in both sexes sometimes occur
38 *rusella.* also in the middle and at the distal margin of the hindwing beneath; to ab. **rusella** *Fruhst.* belong ♀♀ in
39 *digentia.* which the black band of the forewing is wanting (Bahia, Espiritu Santo). ♀-ab. **digentia** *Fruhst.*, from Bahia,
40 *sabella.* is remarkable for the specially broad black band of the forewing. — **sabella** *Fruhst.* (= ausia *Stgr.*), from
41 *pharetia.* the Upper Amazon, has no markings at all on the under surface of the hindwing. — **pharetia** *Fruhst.*, from
Peru, is larger, the apical spot of the forewing beneath is effaced, the underside of the hindwing only with
42 *imperator.* traces of a brown transverse band or without even these. — **imperator** *Kirby*, from the Upper Amazon, is
the most darkly marked form; in it the ♀ has also on the upperside of the hindwing abundant black markings
and on the upperside of the forewing a curved black band occupying half the costal margin and the dis-
43 *phaloë.* cocellular. — **phaloë** *Godt.*, from the Upper Amazon, is smaller and with less markings than *imperator*. —
44 *diana.* **diana** *Fldr.*, from Colombia, has the black apical and marginal markings diffuse. — **sublineata** *Schaus* ~~(19 a)~~,
45 *sublineata.* from Peru, is distinguished chiefly by the strongly yellow colouring of the hindwing beneath. — All the
forms of *buniae* have an even broader layer of scent-scales at the veins than *sevata*.

46 *amaryllis.* **P. amaryllis** *F.* (19 a), from Jamaica, differs from *josepha* by the ‚café-au-lait' colouring. — **josepha**
47 *josepha.* *Godm. and Salv.* (19 a), from Mexico and Central America, also discovered by Herr L. Hartmann of Würz-
burg in Texas, is undoubtedly nearly allied to the preceding species, but must certainly be regarded as a
separate species on account of the peculiar form of the ♂ and the style of marking of the ♀. On the under
surface besides the black median spot of the forewing there are only quite small dark markings present in
48 *gervasia.* the middle of the wings. ab. **gervasia** *Fruhst.* is a female form which has a white under surface with grey-
49 *josephina.* yellow scales. — **josephina** *Godt.* is the form from San Domingo. — **protasia** *Fruhst.*, from Honduras and
50 *protasia.* Nicaragua, has a much smaller black median spot. — **krugii** *Dew.*, from Porto Rico, is smaller, the distal
51 *krugii.* margin of the forewing more incurved, the black spots almost completely effaced.

52 *menacte.* **P. menacte** *Bdv.* (19 b), from southern Brazil and Paraguay, is white above with dark scaling (sometimes wanting) at the apex of the forewing. The ♀ has much darker markings. The under surface is yellowish white with more or less blackish scaling (sometimes absent) along the veins of the hindwing.

53 *cruciferarum.* **P. cruciferarum** *Bdv.* (= casta *Ky.*, marginalis *Scudd.*) (18 f), from California, is plain yellowish white above, beneath more strongly yellow, with ochre-yellow stripe and narrow black edging to the veins of the hindwing.

54 *rapae.* **P. rapae** *L.* (19 b) was introduced into Canada about 1860 and has since spread as far as Hudson's
55 *novangliae.* Bay and South Texas. The larvae cause great damage every year. ab. **novangliae** *Scudd.* is a sulphur-yellow
form. — Larva light green, velvety, with a fine yellow longitudinal line on the back, paler laterally with
a narrow yellow stripe in which the black spiracles are placed, venter yellow-green, head brownish yellow,
20—30 mm. long. Lives on cabbages, Reseda, cress, etc. Egg pear-shaped with longitudinal ridges and transverse folds, laid singly. Pupa yellow, greenish grey or brownish with 3 yellow stripes.

napi. 56
oleracea. 57
virginiensis. 58
pallida. 59
bryoniae. 60
acadia. 61
frigida. 62
hulda. 63
castoria. 64

P. napi *L.*, although distributed over the whole of North America, is much rarer there than in the Palaearctic Region. The summer form *napi* differs from the spring form **oleracea** *Harris* by more abundant dark markings, especially on the under surface, whilst in the Palaearctic Region on the contrary the spring form has more markings; ab. **virginiensis** *Edw.* (19 b) is distinguished from *oleracea* in that the forewing has an indistinct dark apical spot on the upper surface and on the under surface of the hindwing there is very fine but broad dark scaling along the veins, but specimens also occur in which the whole of the hindwing beneath is darkened except for the fine white veins; such specimens have also broad grey streaks at the veins at the apex of the forewing beneath; ab. **pallida** *Scudd.* is purer white above and beneath, only the ♀ has a small black spot on the upperside of the forewing. — The alpine and northern form **bryoniae** *Ochs.*, which occurs in Alaska as well as in some parts of the Palaearctic Region, has in the ♀ yellowish ground-colour on the upper surface and rather broad dark margins to the veins. This form is considerably lighter than the Palaearctic form of the same name. — **acadia** *Edw.* is a large form, which comes between *pallida* and *bryoniae* in colouring and pattern. — **frigida** *Scudd.*, from Labrador, is a whiter form and **hulda** *Edw.* (19 b), from Alaska, is similar to *frigida*, but much smaller. — **castoria** *Reak.* (= resedae *Bdv.*), from California, is a form without much marking. — Larva brownish green, lighter at the sides, with small white tubercles, black dots and a yellow lateral stripe, above which the black, red-yellow edged spiracles are placed, head grey-green; 29—30 mm. long, on the same plants as *rapae.* Pupa greenish yellow, with black spots and dots and yellowish margin to the wing-cases. Egg pear-shaped, likewise laid singly.

protodice. 65
vernalis. 66

P. protodice *Bdv.* (19 c), distributed from Canada to Guatemala, has white ground-colour, a large median spot divided with white and in the ♂ slighter, in the ♀ stronger pattern of marginal and submarginal spots on the forewing. The upper surface of the hindwing in the ♂ is almost without markings, in the ♀ with submarginal dentate markings as well as black marginal spots. The under surface has much paler markings in both sexes. — In the winter form, **vernalis** *Edw.*, the ♂ is smaller and less marked than the ♂ of *protodice*, the ♀ on the contrary scarcely different from that of *protodice.* — Larva in the earlier stages unicolorous orange-yellow, head black, in the later stages the head light straw-colour, posterior half light purple, a gold-yellow spot on each side, the whole head sprinkled with black-brown, eyes purple, broadly edged with black. Body alternately glossy gold-yellow and dark greenish purple, sometimes with uniform, in other cases with unequally broad black band. The yellow colouring of the sides of the back and of the stigmatal band runs into the purple of the infrastigmatal band. Beneath dull light green with reddish tinge. On the whole body larger and smaller black spots, each of which bears a short black hair, also numerous small hairy tubercles (from specimens preserved in glycerine). Pupa light bluish green, slightly suffused with yellowish on the abdominal segments, a dull, broad yellowish lateral stripe on the abdomen, suprastigmatal ridges margined with yellow. Head with small, dispersed blackish spots, wing-cases with faint dark brown marks, veins marked with small, separated, distinct black spots, a black spot on the basal protuberance, segments of the antennae mostly marked in the same way. The spiracles are the same colour as the body. Larva on Brassica oleracea, Lepidium virginicum and other Crucifers.

occidentalis. 67

P. occidentalis *Reak.* (19c), from the mountainous regions of the west of the United States, has the dark markings more extended and less interrupted than *protodice* and the under surface, especially of the hindwing, is strongly marked with green. — *occidentalis* is regarded by Scudder as the third generation of *protedice* (only occuring in the west?). Thus it would seem that the early stages do not differ from those of *protodice.*

sisymbrii. 68

P. sisymbrii *Bdv.* (19c), from the United States, is smaller than *occidentalis*, the black marginal markings are more sharply defined and divided by the veins, which are light here, but sharply dark in the rest of the wings. The underside of the hindwing has black-green markings, broken up in a peculiar manner. The ♀ is quite similar to the ♂. — Egg long, narrow, conical, ground-surface and vertex flattened and depressed, with longitudinal ridges, the interspaces hollowed out and crossed by numerous stripes; colouring at first light yellow, shortly before emergence red. Full-grown larva about 22 mm. long, cylindrical, moderately narrowed anteriorly and posteriorly, light yellow, with black stripes crosswise, each segment sometimes with a fold and in this case on the back small yellow protuberances of irregular size, each terminating in a small fine hair; on all the segments behind the 2. and inclusive of the 12. are 2 stripes. The larva varies very much. Time of development from the egg to the pupa in April — May 33 days, in May — June 30 days. Pupa cylindrical, narrow at the head, hollowed out at the sides, a short thick projection between the eyes, mesothorax projecting, rounded, slightly keeled in consequence of a depression as deep as the mesothorax is high, which however is not uniformly rounded but rather angular, on each side of the dorsum and the anterior abdominal segments are small, angular, inconspicuous elevations, the anterior ones the most distinct; colouring dark brown, the whole upperside except the wing-cases irregularly covered with small protuberances (the pupa is figured by Edwards, Butterflies of North America, hanging free).

beckeri. 69

P. beckeri *Edw.* (19 c), from the United States, is similar to the *Euchloë*-species. Upper and under surface white, on the upperside of the forewing a large black median spot, divided with white, and smaller and indistinct marginal and submarginal spots. Under surface with a large black median spot and two black submarginal spots, as well as greenish markings at the apex of the forewing and at the distal margin, in the middle and at the base of the hindwing, veins for the most part yellow. — Full-grown larva about 33 mm., colouring greenish white, strongly mottled or sprinkled with grey, and with a very distinct orange-coloured belt between the segments, each segment with 16—18 pitch-black tubercles, terminating in black bristles, head yellow. Pupa in general like that of *protodice,* but less angular; the frons ends in an obtuse projection, the head part is rounded, with uneven upper surface, the dorsal side of the thorax is dark grey-brown, the elevation above the wing-cases, which *protodice* possesses, is wanting in *beckeri,* the rest is grey, on the wing-cases and the back of the first two abdominal segments almost white; a light stigmatal stripe runs from the margin of the wings to the anal extremity, between thorax and abdomen are 4 small spots dorsally. Duration of the pupal stage 15 days. Lives on Crucifers. The first generation flies in April, the second from the end of June for 3 - 4 weeks. No differences have been found between the butterflies of the two broods.

70 *venosa.* **P. venosa** *Scudd.* (19 c), from California, is white on the upper surface with the veins scaled with black in the anterior part of the forewing and black dots at the ends of the veins on the hindwing, as well as a black spot on the forewing between the 2. and 3. median veins, on the yellowish white under surface all the veins are rather broadly and very darkly margined, but the veins themselves light.
c

71 *itaticayae.* **P. itaticayae** *Foett.* (19 d), from Brazil, is white on the upperside with yellow stripes between the veins and black apical area on the forewing and small black marginal marking on the hindwing. The under surface of the forewing is white, yellow at the costal and distal margins, the hindwing is darker yellow and the veins with dark margins.

72 *aripa.* **P. aripa** *Bdv.* (19 d), from Venezuela, has yellowish white upper surface, with black apical and
distal-marginal marking, the under surface is somewhat lighter with a black median spot on the hindwing,
73 *balidia.* at the apex of the forewing the black marking of the upper surface shows through. — **balidia** *Bdr.*, from
74 *elodia.* Mexico, is generally more yellow, especially on the underside of the hindwing. — **elodia** *Bdr.*, from Mexico,
is not essentielly different. It would be most correct to unite all the three forms. *P. aripa* occurs from Mexico
to South Brazil, is nowhere rare and varies somewhat. The ♀♀ have more yellowish ground-colour; probably
75 *elodina.* *balidia,* which I only know from the figure, is an *aripa*-♀. — **elodina** *Stgr. i. l.*, from Bolivia, is larger and
on the under surface almost pure white.

76 *eleusis.* **P. eleusis** *Luc.* (19 d), from Colombia and Venezuela, differs from *elodia* by its much more pointed
forewing, broader apical and distal-marginal marking, and also by the black marking in the cell of the fore-
wing above. The ♀ has a yellowish upper surface to the hindwing and broader black marking in the cell
77 *helena.* of the hindwing. — **helena** *Luc.*, from Ecuador, has a narrower black margin, less black dusting at the
costal margin and lighter, almost white, under surface.

78 *pylotis.* **P. pylotis** *Godt.* (19 d), from Brazil, is white above with broad black apical and distal-marginal marking, and also a black median spot on the forewing, the hindwing has black spots at the distal margin, but is, however, not infrequently entirely white. The under surface is similar to the upper, but the distal margin of the forewing is light grey, the hindwing has a black spot at the discocellular and an ochre-yellow one at the base. The ♀ only differs by a yellowish tone on the hindwing beneath.

79 *olympia.* **P. olympia** *Fldr.* (19 e), from Venezuela, Colombia and Peru, has white ground-colour with black distal-marginal area and a small black median spot on the forewing, the under surface is silver-white with black submarginal markings on the forewing and fine black veins on the hindwing.

80 *tovaria.* **P. tovaria** *Fldr.* (19 e), from Colombia and Venezuela, differs from *olympia* in the more normal
distal-marginal area and the absence of the black median spot of the forewing. The ♀ has broader, but paler
81 *sub-* marginal markings and the hindwing is yellowish beneath. — **subflavescens** *Kirby,* from ~~Ecuador~~, has the
flavescens. hindwing yellowish beneath and the apex of the forewing sulphur-yellow. — **maruga** *Fruhst.*, from Ecuador,
82 *maruga.* is larger than *tovaria,* with much broader black margins, the underside of the forewing darker in the cell
83 *gina.* and the stripes between the veins are sharper. — **gina** *Fruhst.*, from Peru, is larger than *maruga,* forewing
more pointed, the black distal margin essentially broader, more deeply indented proximally, the base of the
wing with less black scales, beneath the black band on the forewing broader.

84 *philoma.* **P. philoma** *Hew.* (19 e), from the high mountain ranges of Ecuador and Peru, is white above with very broad black margins and a white subapical spot on the forewing. The under surface of the hindwing and the apex of the forewing are silver-white with sharp, thin black veins and stripes between the veins, the forewing has also the corresponding submarginal marking on the upper surface.

85 *euthemia.* **P. euthemia** *Fldr.* (19 e), from Colombia and Venezuela, is distinguished from *philoma* by much narrower black markings; the hindwing is white except for a narrow black margin.

86 *penthica.* **P. penthica** *Koll.* (19 e), from Colombia, is also similar to *philoma,* somewhat larger, with less black markings, the hindwing is blue in the posterior half, the under surface of the hindwing, in addition to the

very fine, much less conspicuous black veins, has only traces of the black stripes between the veins at the distal
margin, on the other hand a rather large black spot on the discocellular. — **stamnata** *Luc.*, from Venezuela, *stamnata.* 87
is somewhat smaller, but otherwise differs little from *penthica*. — **messala** *Fruhst.*, from Peru, has the forewing *messala.* 88
more pointed, beneath the cell of the forewing is more broadly scaled with black and the subapical
black transverse band is somewhat narrower. — **basiliola** *Fruhst.*, from Bolivia, is smaller and lighter, the *basiliola.* 89
white subapical spot of the forewing broader, the black distal margin of the hindwing decidedly narrower
and the anal area of the hindwing above almost without blue-grey scaling.

P. subargentea *Btlr.* (19 e), from Peru, has the upper surface almost black, with white-yellowish *subargentea.* 90
markings. The under surface of the forewing is similar to the upper, only the apex is bluish instead of black.
The underside of the hindwing is bluish with silvery sheen, the middle of the wing whitish, at the costal
margin a yellow stripe and the veins and the stripes between them are narrowly black. — **lia** *Fruhst.*, from *lia.* 91
Bolivia, is larger and is less extended black.

P. caesia *Luc.*, from Ecuador, is distinguished from **tenuicornis** *Btlr. and Druce* (19 f), from Central *caesia.* 92
America, by narrower black distal margins and the almost complete absence of the sulphur-yellow scaling *tenuicornis.* 93
at the apex of the forewing beneath. The ♀ is black-brown except for the white median and apical markings
of the forewing and the yellowish middle of the hindwing, and has also a broad grey-brown submarginal
band on the underside of the hindwing. — **semicaesia** *Fldr.*, from Colombia, is a small form with narrower, *semicaesia.* 94
pale black-brown margins and impure blue on the under surface. — **phanokia** *Fruhst.* (= semicaesia *Fldr.*?), *phanokia.* 95
from Colombia, of which only ♀♀ are known, is larger than *caesia* and has on both wings a much broader
margin above and beneath.

P. cinerea *Hew.* (19 f), from Ecuador, has the upperside of the forewing white with the apical half *cinerea.* 96
black, in which a white apical spot is placed, the hindwing in the ♂ is blue and in the ♀ black with yellow-white
costal margin. The under surface is quite similar except that there are small sulphur-yellow spots at
the apex of both wings, a stripe of the same colour at the costal margin and small ochre-yellow spots at
the base of the hindwing. The ♀ is paler coloured, the spots at the apices of the wings and stripe at the
costal margin of the hindwing on the underside are white instead of yellow. — **litana** *Fruhst.*, from Bolivia, *litana.* 97
is smaller, the black distal margin narrower, the under surface of the forewing purer white, that of the hindwing
paler yellow. — **menthe** *Hopff.* is the slightly different form from Peru. *menthe.* 98

P. mandela *Fldr.* (20 a) is the oldest name for a species particularly rich in female forms. *P. mandela* *mandela.* 99
is the form from Venezuela with moderately broad black apical marking, in which are one larger and
several very small white subapical spots, and with very narrow black distal margin to the hindwing. The
under surface of the hindwing is lighter than in the better known *locusta* from Colombia. ♀ more like the
♂ than the ♀♀ of the other forms, distinguished from the ♂ by the broader black margin and the yellowish
tint of the rest of the hindwing. — **apicalis** *Btlr.*, from the Upper Amazon, Peru, Colombia and Ecuador, *apicalis.* 100
is larger in both sexes, in the ♂ the black apical margin more sharply angled proximally, the distal margin
distinctly narrower posteriorly, the upper white subapical spot larger, the distal margin of the hindwing
broader in the posterior half, the under surface lighter; the ♀ is similar to the *mandela*-♀, the proximal part
of the hindwing grey-brown to the end of the cell, the under surface of the forewing not sulphur-yellow at
the base, the hindwing has more red colouring, the brown parts are more coffee-brown and the submarginal
spots larger. — **noctipennis** *Btlr. and Druce* (20 a), from Costa Rica and Chiriqui, has in the ♂ a somewhat *noctipennis.* 101
broader black distal margin to both wings than *mandela*. The under surface of the hindwing is somewhat
darker and the yellow marginal spots are sharper and deeper yellow. The ♀ has the upper surface of the
forewing more yellowish with black apical third in which a yellowish subapical spot is placed, the base is
yellowish grey-brown, the hindwing is black-brown with two small yellow subapical spots. — **locusta** *Fldr.* *locusta.* 102
(20 a), from Colombia, is scarcely different from *noctipennis* in the ♂, the ♀ on the other hand, has the distal
third of the forewing and the whole of the hindwing a deep purple-brown colour; a small white subapical
spot on the forewing is sometimes present. The white colour of the middle part of the forewing is tinged
with red. The under surface of the hindwing is darker and the yellow submarginal spots are more indistinct.
— **rubecula** *Fruhst.* (20 b), from Peru, has in the ♂ three distinct subapical white spots, the black apical *rubecula.* 103
and distal-marginal marking only reaches to the first median vein, the hindwing is more broadly margined
with black and the under surface of the hindwing is very light, with much yellow marking and vermilion
streaks at the base. The ♀ has a black central longitudinal band from the cell to the distal margin of the
forewing. — **xanthomelas** *subsp. nov.*, from Ecuador (Coca), is in the female similar to *rubecula*, the hindwing *xanthomelas.* 104
has strongly yellowish ground-colour, which is also present on the basal part of the forewing, also the hindwing
is much darker, the black central longitudinal band of the forewing is shorter and narrower, the under
surface of the hindwing is much darker and the vermilion and yellow streaks are longer and stronger. —
pallida *subsp. nov.*, from Bolivia (Yungas de la Paz, 1000 m.), has a smaller black apical part to the forewing *pallida.* 105
above, with its proximal edge rather straight, and broad, diffuse black distal margin to the hindwing. The
under surface, particularly on the hindwing, is very light and only diffusely marked. — **tithoreides** *Btlr.* *tithoreides.* 106
(20 b), from Ecuador (Balzabamba), has in the ♂ a broad black distal margin to both wings, the hindwing

has a row of small white submarginal spots, under surface dark, yellow markings darkened, the red basal
markings and yellow spots reduced. ♀ with yellow longitudinal central band on fore- and hindwing, a white
107 *cocana.* transverse median band and white submarginal spots on both wings. — **cocana** *Fruhst.*, from Ecuador, is
only distinguished from *rubecula* on the upperside by the narrower black distal margin of the hindwing. The
under surface of the hindwing has white instead of reddish ground-colour, sharp dark marking and the yellow
108 *permagna.* and red markings very much reduced. ♀ unknown. — **permagna** *Fruhst.*, from Peru (Chanchamayo), is similar to *cocana*, the red basal spots on the underside of the hindwing are enlarged and the submarginal
109 *molione.* spots larger and whitish yellow. — **molione** *Fruhst.*, from Paraguay, is the most southern subspecies and
has the least markings of any; it is smaller than *rubecula* and has a much narrower, lighter grey-black distal
margin to the hindwing, which is proximally broken up into fine blue-grey scaling; the light grey under
surface of the hindwing recalls *viardi* in the fine yellow stripes between the nervures.

110 *viardi.* **P. viardi** *Bdv.* (= habra *Doubl.*) (20 b), from Honduras, is white above in the ♂, with black, white-spotted apical and distal-marginal markings and a large black median spot on the forewing, which however
is sometimes wanting, and entirely white hindwing. Underside of the hindwing similar to *mandela*, but much
lighter and the light yellow submarginal spots diverging from the margin from the middle of the distal
margin towards the inner margin, markings of the forewing beneath as above, only much paler. ♀ above
and on the under surface of the forewing black-brown with vivid yellow bands and spots, under surface of
111 *laogore.* the hindwing as in the ♂, only darker. — **laogore** *Godm.*, from Mexico and Guatemala, has lighter markings
on the underside of the hindwing and has no sulphur-yellow markings there.

5. Genus: **Leptophobia** *Btlr.*

This genus cannot be maintained in the wide limits laid down by the author, but may be defined according to the characters observed in the genotype *eleone D.-H.*, with which only a few of the 15 species included by Butler are congeneric. The principal characters of this genus consist in the formation of the precostal, which is curved proximally, and in the shortness of the middle discocellular, which is scarcely $^1/_4$ as long as the weakly curved and less obliquely placed lower discocellular. The subcostal is four-branched with two branches before the apex of the cell, the upper radial is stalked with the subcostal almost to the half. The long antenna (reaching to $^2/_3$ of the margin of the forewing) is not characteristic for the *Leptophobia*-species, but occurs also in some species of *Pieris.*

112 *eleone.* **L. eleone** *D.-H.* (= suadella *Fldr.*) (20 c), from Colombia and Venezuela, has the forewing pointed
and the hindwing produced at the anal angle. The ♂ is lemon-coloured above with broad black distal margin
and narrowly black hindmargin on the forewing, somewhat more than the anterior half of the cell being
also black. The ♀ is light yellow on the hindwing, almost white on the forewing, but marked like the ♂,
113 *ochracea.* though ♀♀ also occur with light ochre-yellow forewing and lemon-yellow hindwing: ab. **ochracea** *form. nov.*
The under surface of the hindwing and the apex of the forewing are yellowish white, with a pearly gloss,
the rest of the forewing light yellow, the hindwing has two small black spots on the discocellular and small
114 *doubledayi.* black marginal spots. — In **doubledayi** *Stgr. i. l.*, from Bolivia, the tooth in the black distal margin is shorter
115 *luca.* and the under surface of the forewing deeper yellow. — **luca** *Fruhst.*, from Bolivia and Ecuador, has a
116 *conica.* narrower black distal margin and no black border at the inner margin. — **conica** *Fruhst.*, from Colombia,
117 *euremoides.* is an aberration of *eleone*, in which the tooth in the black distal margin is prolonged. — **euremoides** is the
name given by Fruhstorfer to that form which is only margined with black towards the apex and in which
the cell is lightly scaled with black only at the costal margin. — The butterflies fly over fields and in
thickets and are fond of being driven by the wind.

118 *smithi.* **L. smithi** *Kirby* (20 c), from Bolivia and Peru (3000 m.), has the wing-shape as in *eleone*, is lemon-yellow above in the ♂, light orange-yellow in the ♀, the distal-marginal markings are much narrower and the cell is not coloured with black. The under surface is more greenish than in *eleone* and the black marginal spots are wanting.

119 *eucosma.* **L. eucosma** *Ersch.* (20 c), from Peru, is larger than *smithi*, has the same yellow upper surface with black apical marking on the forewing, the underside is much lighter and has small black dots on the veins at the distal margin of the hindwing. — This species is only known to me from the figure, consequently I cannot state positively whether it belongs in this genus.

120 *pinara.* **L. pinara** *Fldr.* (20 c), from Colombia (and Peru?) (3000 m.), has the peculiar form apparent in the
figure. Upper surface white with black apical and distal-marginal markings, black median spot on the forewing and slight traces of black colouring at the anal angle of the hindwing. Under surface white, on the
discocellular of each wing a black spot, as well as small black marginal spots on the hindwing, the latter
121 *oiantheia.* and the apex of the forewing glossy. — **oiantheia** *Fruhst.*, from Peru, is smaller and has a narrower black
distal margin on both wings, smaller median spot on the forewing and pure white apex to the forewing beneath.

L. nephthis *Hopff.* (20 c), from the mountains of Peru (3000 m.) and Bolivia, does not differ mater- *nephthis.* 122
ially in shape from the *Pieris*-species. The upper surface is white, the forewing has rather broad black mark-
ing at the apex and the distal margin, the anterior half of the cell being also black, and the hindwing
has a narrow black margin. The under surface is white, on the hindwing somewhat glossy, the forewing has
the marking as above, but somewhat reduced, the apex is light, the hindwing has a small black median
spot as well as a few very small black marginal spots at the posterior part of the distal margin. — **aymara** *aymara.* 123
Fruhst. is an aberration with quite narrow black distal margin on the hindwing and interrupted subapical
band on the forewing.

L. erinna *Hopff.* (20 d), from Peru, is likewise only known to me from the figure, hence I am not *erinna.* 124
certain of its generic position. The upper surface is slightly yellowish white with rather broad black mark-
ings at the apex and the distal margin and large black median spots on the forewing, the hindwing with
only very small black marginal markings. Underside similar, only with bluish instead of black apical and
marginal markings on the forewing; hindwing with small black dots at the distal margin. The ♀ is yellower
above and beneath and has paler and somewhat more copious black markings at the distal margin of the
forewing.

L. cinnia *Fruhst.* (20 d), from Ecuador, has white upper surface with rather broad black markings *cinnia.* 125
at the apex and the distal margin, a black median spot and black costal margin on the forewing and also
an interrupted black marginal line on the hindwing. The under surface is white with a black median spot
on the forewing and strongly silvery gloss on the whole of the hindwing and at the apex of the forewing.
♀ unknown. — **falledra** *Fruhst.*, from Colombia, has a broader black costal margin on the forewing, espe- *falledra.* 126
cially in the distal part of the cell, and a broader black distal margin.

6. Genus: **Itaballia** *Kaye.*

The character of this genus consists in the formation of the precostal, which is not placed at right angles to the costal as in *Pieris*, but is strongly curved and in its distal part runs almost parallel to the costal; otherwise it has no structural differences from *Pieris*. From *Perrhybris*, with which it was united until recently, it is distinguished by the four-branched subcostal.

I. demophile *L.* (= molphea *Cr.*) (20 e), occurring from Colombia to Paraguay, is white above in *demophile.* 127
the ♂, with black apex and black subapical half band, hindwing very narrowly margined with black, under
surface of the forewing white, marked as above, but the subapical band reaching to the costal margin, hind-
wing yellowish with very broad black-brown margin. ♀ above and beneath yellowish, the subapical band
broader and reaching the costal margin above also, costal and distal margins of the hindwing broadly grey-
black. — **calydonia** *Bdv.*, from Central America and Venezuela, is somewhat smaller, less marked with black *calydonia.* 128
and the under surface of the hindwing without any dark markings. — **amathonte** *Cr.* is a very dark (per- *amathonte.* 129
haps rainy seasonal) form of the ♀. — **charopus** *Fruhst.*, from Rio Waupes, is distinguished by a narrow black *charopus.* 130
costal margin of the forewing and the lesser development of the subapical spots, distal margin of the hind-
wing with moderately broad black scaling, veins suffused with black, beneath the subapical band of the fore-
wing and the distal margin of the hindwing narrower. — **niphates** *Fruhst.* has the black spots much *niphates.* 131
narrowed, hindwing with quite narrow antemarginal line, under surface of the forewing also less marked with
black, hindwing diffusely margined with brown-black. Para. — **nimietes** *Fruhst.*, from Bahia, is distinguished *nimietes.* 132
from *demophile* by narrower and more sharply defined yellowish transverse bands on the forewing, under
surface with longer subapical band. — **huebneri** *Fruhst.*, from Rio de Janeiro, is similar to *amathonte.* — *huebneri.* 133
niseias *Fruhst.*, from Paraguay, is similar to *calydonia*: small, distal margin of the upper surface broader, *niseias.* 134
markings otherwise as in *charopus*, under surface similar to *niphates*, but the black distal margin extending
to the anal angle, hindwing with a rather broad, complete band of uniform width, which is sharply defined
proximally. — **minthe** *Fruhst.*, from Ecuador, is essentially smaller than *charopus*, the wings are more *minthe.* 135
roundish, the upper surface of the forewing with extended black apical spot, the hindwing however more nar-
rowly margined with black and in the anal angle with a narrow, densely scaled area, under surface of the
hindwing pure white, the black distal margin narrower; ♀ above with very broad white areas, the base of
the cell yellowish with grey scaling, hindwing mostly white, the black distal margin deeply indented. —
lucania *Fruhst.*, from Peru, is approximately as large as *niseias*, apical spots of the forewing narrower than *lucania.* 136
in *minthe*, black scaling on the hindwing less extended; ♀ with light ochre-yellow ground-colour, black distal
margin of the hindwing less indented, very broad at the anal end, beneath the distal margin of both wings
brown, the ground-colour suffused with ochre-yellow. — **mustica** *Fruhst.*, from Bolivia, is very similar to *mustica.* 137
huebneri, but the white central area of the hindwing more extended beneath; ♀ differing from *lucania* in the
pale and diffuse yellowish ground-colour, under surface of the forewing whitish, yellowish towards the margin,
cell suffused with yellowish, distal border of the hindwing obsolescent and in the middle part much narrowed.

I. pandosia *Hew.* (20 d), from Venezuela, is white above and beneath, with black margins and above *pandosia.* 138
with black base, on the under surface of the hindwing with small red-yellow spots in the dark distal margin.

139 *leptalina.* — **leptalina** *Bates* (= pisonis *Stgr.*) is the form from the Upper Amazon. — **sabata** *Fruhst.*, from Colombia,
140 *sabata.* is smaller than *pandosia*, has a diffuse transverse band on the discocellular and more deeply incised black
distal margin, the underside is yellowish, the white spots of the forewing are smaller and the black bands
141 *ophelia.* sharper. — **ophelia** *Fruhst.*, from Peru (October), shows a stronger development of the black markings, larger
white spots on the under surface of the forewing and a more intensively red band on the underside of the
142 *ludovica.* hindwing. — **ludovica** *Fruhst.* is the dry-seasonal form of *ophelia*; it is decidedly smaller and has the subanal band on the hindwing narrower (February).

143 *marana.* **I. marana** *Doubl.* (20 d), from Ecuador, is similar to *pandosia*, but has on the upperside broader black margins and on the underside of the forewing a black subapical band as well as a similar median band on the under surface of the hindwing, which in the basal part is divided by a red-yellow band; the ♀, which is yellowish white above, stronger yellow beneath, has on the upper surface of the forewing a black subapical band and broader black margins.

144 *pisonis.* **I. pisonis** *Hew.* (20 d), from Colombia and Peru, differs from **kiçaha** *Reak.*, from Honduras, in that
145 *kiçaha.* the black subapical band is complete above and beneath. Both forms have beneath at the margin of the forewing small white spots and at the distal margin of the hindwing a red-yellow macular band.

7. Genus: **Perrhybris** *Hbn.*

This genus differs from *Pieris* by the three-branched subcostal, there are no other sharp structural differences, but it is well characterised by the Heliconine-like style of marking, strongly developed in the ♂♂ only beneath but in the ♀♀ on both sides, which makes it probable that it belongs to another evolutionary stirps than the *Pieris*-species. Following the example of Kaye, we have removed the species with four-branched subcostal, which are also well differentiated from *Perrhybris* in facies, especially by their slighter sexual dimorphism, and placed them with the preceding genus *Itaballia*.

146 *lypera.* **P. lypera** *Koll.* (20 e), from Colombia (and Central America?), is in the ♂ white above with black
apical part of the forewing and broad black distal margin on the hindwing, under surface of the forewing
like the upper, hindwing yellow with broad black margin, a similar longitudinal band in the anterior part,
in which is placed a short red band starting from the inner margin, and a black stripe at the costal margin.
♀ black above and beneath, similarly marked on both sides, on the under surface of the hindwing as in
147 *paravicinii.* the ♂ a red half band. — **paravicinii** *Fruhst.*, from Ecuador (Balzabamba), has longer and narrower wings,
a decidedly narrower black distal margin, on the underside of the forewing the cell is lighter, the apical
spot somewhat smaller, on the underside of the hindwing the margin narrower in the posterior half, the
subbasal band white and pointed, central area light yellow proximally, distally white instead of dark yellow.

148 *pyrrha.* **P. pyrrha** *F.* (= iphigenia *Schulz*) is distributed from Central America to South Brazil (São Paulo)
and from the east coast to the Upper Amazon. The upper surface of the ♂♂ presents the facies of a typical
White, whilst the ♀♀ are similar to the Heliconines. The so-called type-form *pyrrha* occurs in Surinam, from
149 *digitata.* which **digitata** *Fruhst.*, from Espiritu Santo, is distinguished in the ♂ by a narrower black distal margin
150 *pandora.* and in the ♀ by an uninterrupted yellow band on the forewing. — The ♂♂ of **pandora** *form. nov.* (20 e, f),
from Rio de Janeiro and São Paulo, have a completely black hindwing except for a black marginal line,
and reduced black markings on the forewing, the ♀♀ a much broken, light yellow (commonly sulphur-yellow)
151 *eieidias.* band on the forewing. — **eieidias** *Hbn.* is probably a seasonal form from Surinam, with entirely white hind-
152 *lucasi.* wing in the ♂ and very narrow black median band on the hindwing in the ♀. — **lucasi** *Fruhst.*, from Ca-
yenne, is a ♀-form with very broad yellow band on the forewing, the red median band on the hindwing
153 *pamela.* being almost without dentition. — **pamela** *Cr.* is a ♀-form with strongly developed black markings on the
154 *amazonica.* hindwing. — **amazonica** *Fruhst.* (= pyrrha *Stgr.*), from the Upper Amazon, has in the ♂ a narrow black
margin on the hindwing and in the ♀ a moderately dentate band, red above and yellow beneath, on the
155 *incisa.* hindwing. — **incisa** *Fruhst.*, from Bahia, has in the ♂ a broader margin on the hindwing than *amazonica*,
in the ♀ the much broken yellow band of the forewing is broadly margined with black near the base and
156 *malenka.* the red band of the hindwing is produced into fine points. — **malenka** *Hew.*, from Venezuela and Colombia,
has in the ♂ the upper surface of the hindwing entirely white and the under surface with only a few pale
markings, the ♀ has narrower wings, two red-brown bands reaching almost to the margin and only small
157 *ostrolenka.* subapical spots, whilst **ostrolenka** *Stgr.*, from Chiriqui and Panama, is almost without markings beneath in
158 *bogotana.* the ♂ and the ♀♀ are much darker beneath than *malenka*-♀♀. — **bogotana** *Btlr.* (= Mylothris bogotana *Btlr.*),
from Santo Fé de Bogotá, is in the ♀ similar to *malenka*; the yellow-brown median spots of the forewing
and the somewhat shorter submedian longitudinal stripes are sulphur-yellow at the margins; above and well
separated from them are two yellow, obliquely placed spots and above the cell three oblong spots of the
159 *glessaria.* same colour in the oblique subapical row instead of the quadripartite band in *malenka*. — **glessaria** *Fruhst.*,
from Ecuador (Napo and Coca), has in the ♂ above the marginal band deep black, but moderately broad,

on the under surface of the hindwing with very broad and deep black markings, the ♀ is a beautiful red-brown on the proximal two-thirds of the forewing above, with small but deep black markings, the yellow band occupying all the distal part of the area between the first two median veins very broad and brightly coloured, the hindwing is dark red-brown with broad and prominent black markings. The underside of the forewing is marked like the upper, only with somewhat paler colour, the underside of the hindwing is almost entirely black-brown and has only three narrow brick-red longitudinal stripes and at the anterior part of the distal margin three large lighter spots (not flame-shaped). — **flammula** *subsp. nov.*, from Peru (Chanchamayo), *flammula.* 160
is a large form, in the ♂ almost without any black at the distal margin of the hindwing, also beneath much less marked than *glessaria*, but with a considerable amount of sulphur-yellow at the distal and inner margins of the hindwing and some markings of the same tint also at the distal margin of the forewing. The ♀ has on the upperside but little red-brown colouring, strongly mixed with yellow, the four flame-shaped spots placed at the distal margin of the hindwing are lighter (yellower) than the proximal part and the black markings are much reduced, there is a conspicuous yellow spot at the base before the subcostal, the yellow band on the forewing is narrow and strongly dentate and the black markings are moderately developed. The under surface of the hindwing has a distinctive grey-yellow colour, the black markings at the distal margin are very pale in contrast to the rest of the black markings. — **fruhstorferi** *form nov.*, from Panama, *fruhstorferi.* 161
is a ♀-form with almost entirely black forewing. — **carmenta** *Fruhst.*, from Peru, is probably the dry-seasonal *carmenta.* 162
form of *flammula*; it is considerably smaller and has fewer markings. — **austriana** *Fruhst.*, from Bolivia, is *austriana.* 163
marked like *glessaria* on the forewing, the hindwing has a very narrow black distal margin. ♀ above with lighter and more vivid yellow bands and spots than *carmenta*, distal margin of the hindwing somewhat broader, under surface of the forewing with more yellow spots, the under surface of the hindwing yellower and the red median band more distinct. — The ♂♂ of this species, like most Pierids, are fond of moist places on the ground, the ♀♀ of the forest.

P. flava *Oberth.* (20 f), from the provinces of Leopoldina, Espiritu Santo and Bahia, must be regarded *flava.* 164
as a separate species. The ♂ is yellow above and beneath with black apex to the forewing, in which the tooth-shaped projection between the 2. and 3. median veins, which all the forms of *pyrrha* possess, is wanting, the ♀ has on the forewing a band which is sharply defined at both sides and on the hindwing a median band which is likewise yellow but of a deeper tint.

P. lorena *Hew.* (20 f), from Ecuador and Colombia, is white in the male above and beneath with *lorena.* 165
black bands, the under surface of the hindwing, in addition to the black markings of the upper surface which may be seen in the figure, has also a black median band extending from the base to the middle of the wing, which is divided longitudinally by a red stripe, and a black stripe at the costal margin. The very differently coloured and marked ♀ has the markings beneath much as above. — **jumena** *Fruhst.*, from Ecua- *jumena.* 166
dor, is distinguished by a much narrower white subapical band which has the black bordering much broader; on the under surface the red band is reduced and its black border broader. — **luteifera** *Fruhst.*, from Peru *luteifera.* 167
(Chanchamayo), shows in the ♂ the white subapical band running to a point posteriorly, so that a wedge-shaped instead of rectangular spot is formed, underside yellowish instead of white, underside of the hindwing in the marginal and basal areas more extended yellowish. — **peruncta** *Fruhst.*, from Bolivia (Yungas *peruncta.* 168
de la Paz), has broader black bands and the white subapical transverse spot is more symmetrical and narrower, the under surface of the hindwing is more broadly margined with black than in *luteifera* and the subapical band much lighter red.

8. Genus: **Pereute** *H.-Schäff.*

The species of this genus differ widely from the typical Pierids in facies; in the style of marking they have a distant resemblance to some Heliconines, but the form of the wings is quite different; among the Pierids they stand with *Archonias* completely isolated. In neuration they agree with *Leodonta:* the subcostal is three-branched with one branch before the discocellular, the 2, and 3. branches form a moderately long fork, the precostal is weakly curved basad. The genus has its home about between 20° N. lat. and 30° S. lat.

h
P. autodyca *Bdr.* (21 a), from the Brazilian province of Rio de Janeiro, is in the ♂ black above, *autodyca.* 169
scaled with grey at the apex and on the posterior part of the forewing as well as on the hindwing with the exception of the distal margin, in the middle of the forewing the red band of the under surface shows through indistinctly. The ♀ is only scaled with grey on the basal part of both wings and bears on the middle of the forewing a broad brick-red transverse band, which is divided by the black veins. The dark under surface shows at the costal margin of the hindwing a large tear-shaped sulphur-yellow spot and at the base two red spots; in the ♂ the red band of the forewing is narrowed in the anterior part, the ♂ has further a white-red longitudinal band on the middle of the posterior part of the forewing. — **bardela** *Fruhst.*, *bardela.* 170
from Rio Grande do Sul, which according to the description is smaller, on the upperside darker and therefore with less grey and rose-coloured scales, also on the underside of the forewing on the red transverse band towards the costa whitish instead of rose-colour, can scarcely be distinguished from *autodyca* according

to my material; on the other hand a ♀-aberration from Rio Grande do Sul with the band more pale red
171 *rosa.* deserves to be named separately as ab. **rosa** *form. nov.* — **paula** *subsp. nov.*, from the province of São
172 *paula.* Paulo, is in both sexes above more plentifully scaled with grey, also at the distal margin of the hindwing
in both sexes are large spots of grey scales, the ground-colour of the ♀♀ is not pure black, but black-brown,
and the under surface much lighter both in the ground-colour and in the colouring of the red band.

173 *swainsoni.* **P. swainsoni** *Gray* (21 a), from Parana, Santa Catharina and São Paulo, differs from *autodyca* by
its larger form, above by a more distinct transverse band on the forewing and by the difference in the grey
scaling, which is confined to the inner margin of the forewing and the basal half of the hindwing, and
further by a yellow spot at the costal margin of the hindwing. On the under surface of the ♂♂ the red
median band present in the *autodyca*-♂♂ is wanting on the posterior part of the wing. Both species fly
174 *phalera.* together in Rio Grande do Sul and São Paulo. — Fruhstorfer has based the subsp. **phalera** (21 b) on specimens from Rio Grande do Sul and Santa Catharina, but with the exception of the darker colouring of the
under surface I have not been able to confirm the characters given by him.

175 *cheops.* **P. cheops** *Stgr.* (21 b), from Chiriqui, has a bluish black upper surface with slight gloss, the ♂ has a median band of yellow scales, a similar one in the anterior part of the cell and sparse yellow scales at the inner margin of the forewing and on the basal part of the hindwing. On the lighter (black-brown) under surface the yellow band of the forewing is much broader and more distinct, at the costal margin of the hindwing stands a yellow band and at the base are two red spots. The ♀ has a broad red band and yellow costal margin on the upperside of the forewing. Both sexes have yellow antennae.

176 *charops.* **P. charops** *Bdv.* (21 b), occurring from Mexico to Panama (Chiriqui), is distinguished from the other
forms of this species by copious grey-white (♂) or reddish (♀) dusting at the distal margin of the forewing.
The median band of the forewing is brilliant yellow (♂) or red (♀) beneath. Both sexes have on the underside of the hindwing a long yellow stripe at the costal margin and a very small yellow stripe at the base.
77 *subvarians.* — **subvarians** *Stgr. i. l.*, from Colombia, has in the ♂ less grey dusting on tho upperside, and the median
band of the underside is for the most part dull red instead of yellow. In the ♀ the submarginal red dusting
178 *columbica.* is absent from the upperside of the forewing. — **columbica** *Fruhst.*, from Colombia, is distinguished by a
general reduction of the grey dusting, which remains more distinct, however, in the middle cell; yellow
spots are placed at the discocellular; median band of the forewing beneath yellow. This form appears to be
179 *cauca.* only a ♂-aberration of **cauca** *subsp. nov.*, from the Cauca Valley in North Colombia. In this the grey dusting of the ♂ is uniformly reduced everywhere, the median band is red instead of yellow for more than its
basal half, and shows through on the upperside. The ♀♀ have a very broad light red band on both sides of
180 *peruvianus.* the forewing. — **peruvianus** *Stgr. i. l.*, from Peru, has a broad yellow median band on the upperside of the
forewing and distinct grey scaling on the apical part and the inner margin of the forewing; the hindwing
has but little grey scaling. The under surface of the forewing has a sharp, sulphur-yellow median band.
181 *meridana.* ♀ unknown. — **meridana** *Fruhst.*, from Northern Venezuela, has a strongly darkened upper surface without
grey scales in and behind the middle cell and on the distal part of the hindwing, distal part of the median
182 *praemeridana.* band on the underside of the forewing red. Amongst this form occurs ab. **praemeridana** *Fruhst.*, which has
the band of the forewing beneath entirely yellow. — This species has white antennae.

leucodrosime. **P. leucodrosime** *Koll.* (21 c). With this species, from Colombia, begins the series of those species
which have also in the ♂ a red band on the upper surface of the forewing. Ground-colour black, proximal
half of the hindwing and basal part of the inner margin of the forewing with blue-white scales, thorax and
abdomen with white hairs. The red band of the forewing above ends at the subcostal and is not prolonged
basad. The under surface is black-brown, the veins and the stripes between them are black, at the base of
the hindwing there are two small red spots. Antennae white. Specimens with the red band much reduced
84 *reducta.* are ab. **reducta** *form. nov.* — In **bellatrix** *Fruhst.*, from Peru, the red band of the forewing is lighter and
185 *bellatrix.* is not narrowed towards the margin, on the other hand the blue-white scaling on the proximal part of the
186 *beryllina.* wing is reduced, under surface somewhat darker. — **beryllina** *Fruhst.*, from Ecuador, has a narrower and
187 *latona.* deep red band on the forewing. — **latona** *Btlr.*, from Venezuela, has on the upperside of the forewing only
a red spot at the end of the cell instead of the red band. Among this form occur also specimens with entirely
188 *unicolor.* black forewing: ab. **unicolor** *ab. nov.*

9 *callinira.* **P. callinira** *Stgr.* (21 c), from Peru, has ~~black~~ antennae. The upper surface as in *leucodrosime* is scaled
with blue-white, the band of the forewing is of uniform breadth and in the middle cell continued somewhat
towards the base, the basal half of the costal margin is finely, but sharply yellow, on the under surface of
190 *musia.* the hindwing the red basal spots are absent. ab. **musia** *Fruhst.*, from North and Central Peru, is larger, the
191 *sabrina.* red band much narrowed at both ends and rounded off. — **sabrina** *Fruhst.*, from Colombia, has an essentially
narrower red band on the forewing and more abundant blue scaling at the base, at the costal margin of
192 *numatia.* the forewing the red band is tinged with yellowish. — **numatia** *Fruhst.*, from Bolivia, is smaller and paler,
the red band broader, above in the middle more copiously scaled with black.

P. callinice *Fldr.* (21 c), from Venezuela, Colombia and South Peru, has ~~likewise~~ black antennae. *callinice.* 193
The upper surface is black brown, the bluish scaling occupies the whole basal half of the hindwing but is
completely wanting on the forewing. The light red median band of the forewing is only represented behind
the discocellulars by a very small spot, is distally rounded and does not reach the distal margin. The under
surface is as in *callinira,* but much lighter. The butterfly flies on forest-paths and is fond of drinking at
moist places on the ground.

P. telthusa *Hew.* (21 c), from Peru and Ecuador, differs much from the preceding species. Antennae *telthusa.* 194
white. Upper surface black, with subapical yellowish macular band, small light submarginal spots, bluish
white inner-marginal part of the forewing and blue-scaled basal part of the hindwing, which also shows
small bluish marginal spots. The under surface is black, the forewing has the pattern of the upperside and
the hindwing a small yellow stripe at the costal margin and also three red basal spots. — **magna** *subsp.* *magna.* 195
nov., from the Lower Amazon (Obidos), is larger, the light area at the inner margin of the forewing is
smaller and completely scaled with blue, the blue spots at the distal margin of the hindwing are larger, the
under surface is darker and the yellow stripes at the costal margin of the hindwing very small. — **boliviana** *boliviana.* 196
subsp. nov., from Bolivia, has a broader and more strongly yellow subapical band on the forewing
above and beneath. The light area at the inner margin of the forewing is larger on both surfaces and only
scaled with blue at the margins, the blue spots at the distal margin of the hindwing are smaller, the under
surface is somewhat lighter (more brown) and the yellow stripes at the costal margin of the hindwing longer
and broader.

9. Genus: **Archonias** *Hbn.*

The characters of this genus are rather uncertain, the facies of the butterflies forms the best criterion for deciding as to their genus. The subcostal is four-branched, the 2. branch originates beyond the apex of the cell and the 3. and 4. branches form a short fork in the apex of the wing; yet this character is not constant even in one and the same species. It will be advisable to place in this genus only the *tereas*-like forms which mimic *Papilio.*

A. tereas *Godt.* (= iulus *Hbn.*, ♀ = marcius *Hbn.*). The specimens from Rio de Janeiro and Espiritu *tereas.* 197
Santo may be regarded as the so-called typical form. It can scarcely be separated from **uniplaga** *Fruhst.,*
(21 d), from Rio Grande do Sul and São Paulo. This form is said to have only one white median spot on *uniplaga.* 198
the forewing, which however among the material before me only occurs in one specimen from Santa Catharina;
the remaining eight specimens from Santa Catharina and São Paulo have three median spots, one of which
is placed in the cell. The ♀ has always somewhat more white marking on the forewing and more red, of
a deeper colour, on the hindwing. — **critias** *Fldr.* (21 d), from Venezuela and Colombia, is very variable as *critias.* 199
regards the white marking on the forewing, the red marking of the hindwing is more extended and of
a deeper tone than in *tereas.* To ab. **hades** *Fruhst.* belong specimens with the forewing entirely black above, *hades* 200
and to ab. **nigripennis** *Btlr.* entirely black specimens — **approximata** *Btlr.* is the form from Central America. *nigripennis.* 201 *approximata.* 2
— **papilionides** *Fruhst.*, from Honduras, has somewhat modified white spots on the forewing and three *papilionides.* 2
intensively carmine-red spots on the hindwing; beneath the spots on the wings are yellowish. — **regillus** *regillus.* 204
Fruhst., from Ecuador, is smaller than *tereas,* the forewing has two white spots placed one under the other,
the hindwing three small pale red, lighter-margined ones. — **archidona** *Fruhst.*, from Ecuador (Balzabamba), *archidona.* 20
has a completely black forewing or at least but little white marking, and on the hindwing above and beneath
yellowish or white instead of red spots. — **rosacea** *Btlr.,* from Ecuador (Quito) and Colombia, has light red *rosacea.* 206
spots on the upper surface of the hindwing. — "In Santa Catharina *tereas* begins to fly early in September
as one of the first heralds of spring, and animates in well-watered valleys almost all the sweet-scented
flowering shrubs with its quiet beauty and its delicately coloured garb" (Fruhstorfer).

A. bellona *Cr.* (= ♀ erycinia *Cr.*, brassolis *F.*, braselis *Godt.*), from Guiana, although regarded as a *bellona* 207
separate species, is probably really another form of *tereas,* which is extraordinarily modified in the wooded
west. **A. bellona** is but little different from **negrina** *Fldr.*, from the Rio Negro. The ♂ is black above with *negrina.* 208
large light yellow spots on the forewing and red streaks on the under surface of the hindwing, whilst in
the ♀ the upper surface of the hindwing is also for the most part red. — **cutila** *Fruhst.* (21 d), from Ecuador, *cutila.* 209
has large yellow spots on the forewing and three red streaks on the upper surface of the hindwing. — *phaloreia.* 210
phaloreia *Fruhst.*, from Peru, has black upper surface with small yellow spots on the forewing. — **hyrnetho** *hyrnetho.* 211
Fruhst. (21 d), from Bolivia, has more rounded wings than the preceding forms, the spots on the forewing
are somewhat lighter yellow and a little larger, the upper surface of the hindwing is black, but the under
surface has narrow red streaks, a yellow stripe at the costal margin and yellow marginal spots. In the ♀
the hindwing above is for the most part red. — **sabrina** *Fruhst.*, from Argentina (?), has very intensive yel- *sabrina.* 212
low spots on the forewing, of which the curved one in the cell is very large; the underside of the hindwing
is similar to that of *hyrnetho,* the yellow marginal spots are very small. Baron G. von Plessen observed this
species in large numbers and in both sexes in a thicket, so it may be assumed that the butterflies had
emerged in this thicket; hence we may further conclude that the larva is gregarious. The butterflies are
fond of settling on leaves.

pharnakia. **A. pharnakia** *Fruhst.* (= archoniaoides *Stgr. i. l.*) (21 e), from Peru, is very different from all the above mentioned *Archonias*-forms, and is probably a separate species. The upper surface is black-brown with yellow spots on the forewing as on the underside, the hindwing is entirely without markings; ♀ in the middle part of the forewing above and beneath brick-red.

10. Genus: **Charonias** *Röb.*

For the reasons given under *Archonias* it is necessary to place the following species in a separate genus. In the neuration there is a slight difference in that the two discocellulars of the forewing are of equal length and the upper discocellular of the hindwing is considerably shorter than the other two. The palpi are somewhat longer and stronger than in *Archonias.* Above all the external appearance is important in determining the genus.

eurytele. **Ch. eurytele** *Hew.* (21 e), from Ecuador and Colombia, is brown on the proximal part of the wing
and black on the distal part, in the latter are placed yellow spots; specimens with white spots may be described
albimaculata. as ab. **albimaculata** *ab. nov.* The under surface is quite similar to the upper, but there are rather
216 *lyceas.* large white submarginal spots at the distal margin of the hindwing. — In **lyceas** *Godm. and Salv.*, from
Panama (Bugaba), there is only a streak-shaped spot of the brown colour of the forewing above present at
dismorphitis. the inner margin, the under surface of the forewing is entirely black. — **dismorphitis** *Btlr.*, from Chiriqui,
dismorphina. has the forewing deep black with light yellow spots and the hindwing light brown. — **dismorphina** *Stgr. i. l.*, from Colombia, likewise has the forewing very dark all over, with larger deep yellow spots, the hindwing
nigrescens. being dark brown. — **nigrescens** *Godm. and Salv.*, from Guatemala, is a still further darkened form.
— The ♀♀ are only somewhat larger, otherwise not different.

theano. **Ch. theano** *Bdv.* (21 e), from Brazil (e. g. São Paulo) is black with whitish streak-shaped spots. The ♀ instead of white marks has dark yellow ones in the proximal and sulphur-yellow in the distal part of the wings. The under surface is similarly, but more copiously marked, the hindwing is yellow with black veins and black distal margin in which white spots are placed.

11. Genus: **Appias** *Hbn.*

In the neuration this genus agrees entirely with *Pieris*, but the ♂♂ have a special characteristic, namely two stiff tufts of hair (secondary sexual organs) on the anal claspers at the underside of the abdomen; the ♀♀ are easily distinguished from those of *Pieris* by the peculiar colouring of the under surface, which is weaker-marked and has a slight pearly gloss. The genus is represented in India by numerous species, some of them beautifully coloured, and also in Africa by several species, but in America there is only one certainly distinct species, which until recently was classed with the genus *Daptonoura.* As the synonymous generic name *Tachyris,* given by Wallace, indicates, the insects belonging to this genus are extraordinarily active. According to the observations of Dr. A. Seitz the *Appias* (especially *drusilla*) are only equalled in swiftness of flight among the butterflies by the representatives of the Hesperid genus *Spathilepia*; in a few seconds they traverse long distances. They not only fly extremely fast but also manage to take up their nourishment from flowers in the greatest haste. Only in imbibing water from the damp ground, where these insects, particularly the males, sometimes settle in large crowds close together, do they allow themselves time, and engage in this activity for the moment as an amusement.

drusilla. **A. drusilla** *Cr.* (= ilaire *Godt.*, margarita *Hbn.*, albunea *Dalm.*) (21 f) is distributed from Southern Florida to South Brazil, and is common. The ♂ is white above, with slight blackish apical marking on the forewing, sometimes entirely without marking, beneath yellowish white without marking, only with a small yellow stripe at the costal margin of the hindwing. The ♀ is white above on the forewing, on the hindwing yellowish, and has broad black margins, beneath white with a reddish sheen and very weakly developed markings similar to those on the upperside, as well as yellow dusting at the base of both wings, especially the forewing. The specimen figured by W. J. Holland in his Butterfly Book on plate XXXV as ♀ is according to the shape of the wings a ♂ with strongly yellowish upper surface and more strongly developed
2 *hollandi.* black marking at the apex and basal part of the forewing; this form deserves special mention as ab. **hollandi**
1 *janeira.* *ab. nov.* — **janeira** *Bönningh.*, hitherto only observed in the Botanical Gardens at Rio de Janeiro, has
224 also in the male yellow colouring at the base on the underside of the wings; v. Bönninghausen regarded it
poeyi. as a distinct species. — **poeyi** *Btlr.*, from the Antilles, has in the ♂ no markings above and is somewhat more yellowish beneath; the ♀ has more strongly yellow ground-colour and slighter marginal marking on the hindwing above, the underside is likewise more yellow than in *drusilla*-♀.

12. Genus: **Cathaemia** *Hbn.*

The forms belonging here were until recently united with *Hesperocharis,* but Radcl. Grote erected the genus *Cunizza* for them. This name, however, must give way to the older one given by Hübner. It is true that the only difference in the neuration is that in *Hesperocharis* the upper discocellular of both wings is angled and has a short spur running into the cell, in *Cathaemia* on the contrary these veins are only slightly curved and have no spurs, but the great difference in the style of marking and the shape of the wings confirms the generic independence of the two.

C. hirlanda *Stoll.,* probably from Surinam, is distinguished from the better known **ninguida** *Fruhst.* (= hirlanda *Stgr.*) (21 f), from Peru, by the broader black distal margin of both wings. — **obnubila** *Fruhst.,* from South Peru, has the hindwing almost black, so that only the cell and a few postmedian spots remain white. — **fulvinota** *Btlr.,* from Rio de Janeiro, is completely white above except for the yellowish basal part of the wings and the black costal margin of the forewing, the under surface is quite similar to that of *hirlanda* except that it has a red-yellow instead of a red marginal band on the hindwing. — **praeclara** *Fruhst.,* from Espiritu Santo, is in the ♂ of a beautiful light yellow on the upperside of the forewing, on the hindwing lemon-yellow with red band of the under surface showing through slightly, forewing with broad black distal margin, which at the 1. median vein is united with a black band starting from the costal margin, hindwing with narrow black margin, under surface similar to that of *hirlanda,* the black apical spot not joined to the subapical band, but separated from it by a yellow band. In the ♀ the black margin of both wings is broader. — **apicalis** *Fruhst.,* from Ecuador, is intermediate between *ninguida* and *obnubila.* — **helvia** *Latr.* (21 f), said to be from Mexico (?), of which only specimens from Colombia are before me, generally regarded as a separate species, is in my opinion also a *hirlanda*-form, because I have specimens which unmistakably form a transition. In this form the red marginal band of the hindwing beneath is wanting, yet most specimens have traces of it. The aberration which is suffused with light yellow on the upperside of the forewing and on the underside of the forewing coloured with yellow over the whole surface is named by Fruhstorfer ab. **serda**; transitional forms, however, also occur.

hirlanda. 22
ninguida. 226
obnubila. 227
fulvinota. 228
praeclara. 229
apicalis. 230
helvia. 231
serda. 23

13. Genus: **Leodonta** *Btlr.*

The species of this genus were formerly classed with *Pereute.* Although the two genera show no essential difference in the neuration and in the organs, they are yet sharply separated by their external appearance. But another character which is doubtless worthy of note consists in the formation of the anal claspers of the ♂♂, which are much smaller in *Leodonta* than in *Pereute.* So far seven forms have been described, which have all been regarded as separate species, but I have only been able to recognise in them two species, one of which forms local races. — The butterflies fly over foot-paths and are fond of drinking at moist places on the ground.

L. dysoni *Doubl.* (21 e), from Venezuela, is the form which has the most white markings on the upper surface, the hindwing is white with obsolete yellow spots at the base and broad black distal margin, which occupies about ¼ of the surface of the wing, at the distal margin are placed larger white spots, the median band on the underside of the hindwing is white with one yellow streak in each marginal cell, and the rest of the hindwing beneath is lighter than in the other forms. — **zenobina** *Hopff.* (21 e), from Peru and Bolivia, has a broader black distal margin on the hindwing above and darker distal and basal parts on the hindwing beneath. — **intermedia** *subsp. nov.,* from Northern Colombia (Cauca Valley), is smaller, the black distal margin of the hindwing is somewhat narrower than in *zenobina* and the basal part darkened, the median band on the under surface of the hindwing is broader and yellow, only the veins being very narrowly whitish, on the upper surface of the forewing in the cell at the point of origin of the 2. median vein there is a white spot, which also beneath is much larger than in the preceding forms. — In **chiriquensis** *Stgr.,* from Chiriqui, the black distal-marginal band of the hindwing reaches the discocellulars and at the distal margin there are larger white spots, the white median band of the forewing is narrower. — **zenobia** *Fldr,* from Colombia, is a smaller form with yellowish median band on the upperside, the basal part of the hindwing is black, the light median band on the underside of the hindwing narrower, being interrupted in the middle. — In **tagaste** *Fldr.* (21 f), from Peru and Ecuador, the upper surface is for the most part white, the hindwing has only a black margin. — **marginata** *Schaus,* from Venezuela (Merida), has half the forewing white, and 2 rows of small white subapical spots, the hindwing being similar to that of *dysoni.*

dysoni. 233
zenobina. 23
intermedia. 23
chiriquensis.
zenobia. 2
tagaste. 23
marginata. 2

L. tellane *Hew.* (22 a), from Colombia, is yellow above with broad black margins, in which are placed yellow spots, the proximal part of the hindwing beneath is yellow, the base itself grey-brown.

tellane. 24

14. Genus: **Catasticta** *Btlr.*

The only apparently certain difference in the neuration of this genus from that of *Archonias* consists in the second subcostal vein branching off either immediately at the upper angle of the cell or shortly before or after it. The external appearance of the representatives of this genus differs from that of *Archonias* to such an extent that their generic separation seems fully justified. Although the *Catasticta*-species exhibit a fairly uniform facies yet they form various groups, which however are mostly connected by transitions. The genus is distributed from Mexico to South Brazil, but has its proper habitat in the mountains of the west. The species doubtless vary considerably according to the locality, whether they also show seasonal forms has not yet been ascertained. According to Paul Hahnel the ♂♂ of the *Catasticta*-species have a habit of settling in the sunshine on water-washed stones at the banks of rivers, and drinking so greedily that the water comes out again in drops at the anus at short intervals. Not infrequently they are washed away by the water, which however does not harm them in the least, for immediately afterwards they rise like a water-bird out of the waves, in order to settle anew on the stone where they can reach the refreshing liquid.

241 *notha.* **C. notha** *Luc.* (22a), from Venezuela, is above white with black apical and distal-marginal marking, very similar to the following species, beneath with white forewing, the apex of which is reddish grey, with small yellow stripes, hindwing diffusely red-white with yellow stripes in the cellules, distinct triangular yellow marginal spots and red basal spot.

42 *corcyra.* **C. corcyra** *Fldr.* (22a), from Venezuela and Bolivia, is above very similar to the preceding, except that on the hindwing the dark markings of the under surface show through. Underside of the forewing white with black apex, in which yellow stripes are placed, hindwing yellow with black-brown veins edged with
43 *staudingeri* white, black-brown dentate median band and vestiges of a marginal lunate macular band. — In **staudingeri** *Btlr.*, from East Peru, the latter is completely developed. In this form the under surface of the hindwing is much lighter yellow and the black apical marking of the forewing only reaches to the second median vein. The ♀ has broadened black-brown apical marking of the forewing and black-brown spots at the distal margin of the hindwing above.

244 *pieris.* **C. pieris** *Hopff.* (22a), from Peru, is above white with black apical and subapical marking on the forewing and also a black marginal line on the hindwing. The under surface is white with brownish and yellow markings on the apex of the forewing. The underside of the hindwing is white, with a lunate line at the distal margin and in the middle, as well as similarly coloured markings at the base, where there is
45 *innuba.* also a dark red spot; each area of the wing has a yellow longitudinal stripe. — **innuba** *Stgr. i. l.*, from Bolivia, has yellow ground-colour above and beneath.

46 *eurigania.* **C. eurigania** *Hew.*, from Ecuador, is undoubtedly only a local form of **straminea** *Btlr.* (22a), from
47 *straminea.* Peru; the latter is distinguished by deeper yellow ground-colouring, the presence of three subapical yellow spots on the forewing and somewhat different marking at the distal margin of the hindwing. The under surface has the typical *Catasticta*-marking.

248 *theresa.* **C. theresa** *Btlr.* (22a), from Chiriqui, has the outer margin of the forewing concave. The ground-colour is dark brown and the yellow markings are narrower than in *eurigania.* The under surface is similar, but the yellow markings are reduced in favour of the slightly glossy reddish-bluish colouring.

249 *nimbice.* **C. nimbice** *Bdv.* (22b), from Mexico, has in the ♂ straw-yellow, in the ♀ ochre-yellow markings on
250 *bryson.* the upperside. — **bryson** ~~*Stgr. i. l.*~~ (22b), from Chiriqui and Guatemala, Costa Rica has broadened yellow markings on the upper surface, the under surface is somewhat lighter, especially at the base.

251 *sinapina.* **C. sinapina** *Btlr.*, from Peru, resembles *nimbica* on the upper surface, but the median band is more distinctly divided by the veins and the spots of which it is composed are smaller, the submarginal spots of the forewing and the marginal ones of the hindwing are larger, hindwing produced at the anal angle, under surface entirely uniform, ground-colouring mustard-yellow and the veins and markings purple-brown. Only known to me from the description.

252 *pinava.* **C. pinava** *Dbl.* (22b), from Bolivia and Peru, is above similar to the preceding species, but has narrower yellow markings and the wings more rounded. The hindwing beneath is suffused with more glossy white, and consequently lighter. The ♀ has above much lighter yellow, almost white markings.

253 *vapina.* **C. vapina** *Btlr.*, from Ecuador, is most closely allied to *pinava,* to which it is very similar on the upper surface. All the pale markings are lighter, more sandy yellow, except those at the distal margin, which are white. On the under surface colouring and markings are very similar to *philothea,* but all the light areas are larger and sharper, the ground-colouring of the forewing is light chamois, of the hindwing pearly white. suffused with sulphur-yellow on the proximal half, the white marginal markings are as in *manco,* apex and distal margin of the forewing similarly coloured. Only known to me from the description.

54 *colla.* **C. colla** *Dbl.* (22b), from Bolivia and Peru, has above black-brown ground-colour with deep yellow macular median band and a submarginal row of small yellow dots on the forewing, broader yellow median band and some yellow marginal spots on the hindwing. The under surface is very gay on account of its

silver-white, sulphur- and orange-yellow, and also brownish and black spots, the arrangement of which may be seen from the figure. — **jacinta** *Btlr.* (22 b), from Bolivia (seasonal form?), has much more yellow on the upper surface. The under surface is less variegated on account of the almost complete absence of the silver-white markings. — **plesseni** *subsp. nov.*, discovered by Baron G. v. Plessen in Ecuador (Baños), is somewhat smaller than *colla,* and has above lighter yellow median bands and more distinct submarginal spots; beneath all the yellow markings are likewise lighter and the ground-colour of the hindwing purer white, without reddish flush. *jacinta.* 255 *plesseni.* 256

C. chelidonis *Hopff.* (22 c), from Bolivia, has broader and more distinct yellow markings than **philomene** *Stgr. i. l.*, from Bolivia (seasonal form?). The under surface in both forms is quite similar, only *chelidonis* has more yellow markings on the forewing, particularly in the middle. — The small form from Ecuador with sharper yellow markings may be differentiated as **aequatorialis** *form. nov.* *chelidonis.* 257 *philomene.* 258 *aequatorialis.* 259

C. hopfferi *Stgr. i. l.* (= pinava *Btlr.*, nec *Dbl.*) (22 c), from Bolivia, is much smaller than the preceding species, but the submarginal yellow spots are much larger and both wings have small yellow marginal spots. On the underside of the hindwing the median markings are separated from the marginal spots by a sharply defined band of silver-white heart-shaped spots, the yellow markings are not orange, but sulphur-yellow. — Specimens with darkened upper surface are in the market as forma **obscurior** *Stgr. i. l.* *hopfferi.* 260 *obscurior.* 261

C. teutanis *Hew.* (22 c), from Peru and Ecuador, gives on the upper surface the impression of a small *Pareronia.* Upper surface white, on the basal part of the forewing and the whole of the hindwing bluish white on account of the dark colouring of the under surface showing through, the apical half of the forewing black with small bluish white subapical and submarginal streaks, the hindwing with rather broad, deeply indented black distal margin. Under surface with the exception of the middle part of the forewing brown-black with slight yellow marginal and submarginal markings and two dark red basal spots on the hindwing. *teutanis.* 262

C. ctemene *Hew.* (22 c), from Ecuador, has the apex of the forewing produced. Upper surface white with black-brown apical and basal parts and black-brown marginal spots on the forewing; in the dark apex of the forewing are placed small white subapical spots. The underside of the forewing is white, that of the hindwing bluish brown with diffuse *Catasticta*-markings. *ctemene.* 263

C. prioneris *Hopff.* (22 c), from Peru, is white above with black-brown markings at the margin and at the base. Under surface white with bluish brown and sulphur-yellow *Catasticta*-markings and two red basal spots on the hindwing. ♀ has much broader marginal markings, particularly on the hindwing. — **caucana** *subsp. nov.*, from Cauca in Colombia, is distinguished by the want of the white submarginal spots of the forewing and slight black marking at the distal margin of the hindwing. The under surface is paler. The ♀♀ have above larger white spots at the discocellular than *prioneris*-♀♀. *prioneris.* 264 *caucana.* 265

C. sisamnus *F.*, from Peru, has black upper surface, a broad white median band and white marginal and submarginal dots and spots. The markings of the under surface correspond to those of the upper, median band yellowish white with small yellow stripes, marginal and basal areas black-brown with small marginal and submarginal spots and two red basal spots on the hindwing. — **telasco** *Luc.*, from Chiriqui, has on the hindwing narrower black distal margin and the white submarginal spots on the forewing are larger, the median band of the forewing is narrower and the under surface somewhat lighter. — **pitana** *Fldr.* (22 c), from Colombia, has the median band still broader and very sharply defined, being in the ♂ white, in the ♀ white or yellowish; ♀♀ with lemon-yellow median band and spots of the same colour may be distinguished as ♀-f. **flava** *form nov.* *sisamnus.* 266 *telasco.* 267 *pitana.* 268 *flava.* 269

C. bithys *Hbn.* (22 d) occurs from Mexico to South Brazil. Upperside black-brown with narrow whitish macular median band, small white marginal and submarginal spots; sometimes one or the other row is wanting. Underside with small yellow stripes in the white median band of the hindwing, marginal part reddish black-brown, with small marginal and submarginal yellow spots edged with black. ♀ not different. *bithys.* 270

C. troezene *Fldr.* (22 d), from Colombia, has black-brown upper surface with white macular median band, darkly dusted over, distinct submarginal and indistinct (in the forewing sometimes absent) marginal spots which on the hindwing are small but distinct. Under surface much marked with sulphur-yellow. *troezene.* 27

C. troezenides *Stgr. i. l.* (22 d), from Colombia, though very similar to *troezene* beneath, has less yellow marking and broader black-brown marginal marking. Above differing somewhat in the greater part of the hindwing being white. In contrast to the hindwing the forewing shows less white markings than *troezene.* *troezenides.* 27

C. hebra *Luc.* (22 d), from Colombia, is similar to *troezenides* above, but the black margin of the hindwing is broader and dentate, the under surface however is rather different through the want of sharp *Catasticta*-marking. The underside of the hindwing is reddish brown with light submarginal and median bands, distinct triangular sulphur-yellow marginal spots, oblong sulphur-yellow submarginal ones and sulphur-yellow stripes in the proximal part of the wing. *hebra.* 273

274 *strigosa.* **C. strigosa** *Btlr.*, from Peru, is in form, size and general appearance like *hebra,* deep olive-brown, the last third of the middle cell of the forewing shows sparse sulphur-yellow scaling, the cell is surrounded by a row of oblong, pointed sulphur-yellow-brown streaks, the outer part of the first six streaks is divided by the ground-colour, hindwing sulphur-yellow-brown, but the veins and the distal margin olive-brown, three elongated light yellow spots bound the 2. to 4. interneural stripes. Under surface similar to that of *ctemene,* but the yellow spot on the forewing divided into narrow streaks by the broadly brown-edged veins. Only known to me from the description.

crowleyi. **C. crowleyi** *Btlr.*, from Venezuela (Monte Sierra and Culata), is similar to *strigosa.* Upperside dark purple-brown with whitish ash-grey areas and spots, the distal margin of the hindwing and the veins are sharply prominent; an orange-yellow spot at each side of the prothorax; under surface almost as in *actinotis,* but the hindwing of light reddish brown colour, without sharp median band, the yellow spots only edged with dark brown marks. Only known to me from the description.

semiramis. **C. semiramis** *Luc.* (22 d), from Colombia, is above obscure grey-black with indistinct yellowish white submarginal and central spots, but beneath brilliantly marked. The hindwing is remarkable for the abundant sulphur-yellow markings, which are paler on the forewing, and the sharp black and snow-white markings.

niobe. **C. niobe** *Stgr. i. l.* (22 d), from Bolivia, is above black-brown with indistinct yellowish submarginal and central spots on the forewing and light subbasal band on the hindwing. The ground-colour of the hindwing beneath is a light sulphur-yellow, on which the black and the dark sulphur-yellow, black-edged markings stand out well. The forewing has black-brown ground-colour with light marginal, submarginal and central spots, which are sulphur-yellow in the anterior part and white in the posterior.

suasa. **C. suasa** *Stgr. i. l.* (22 e), from Bolivia, has very dark, black-brown upper surface, with obsolete whitish submarginal and central spots. The under surface of the hindwing is very variegated, with silver-white, sulphur-yellow, reddish brown and black-brown markings. The under surface of the forewing has black-brown ground-colour and white submarginal and central spots, as well as very small, white, anteriorly
suasella. yellow, oblong marginal spots. — **suasella** *subsp. nov.*, from Peru, is above much lighter (yellowish grey) and beneath much less sharply marked; the light markings on the underside of the forewing are yellowish and much more extended in the middle.

modesta. **C. modesta** *Luc.* (22 e), from Peru, has the upper surface grey-brown with slight obsolescent light submarginal and central markings. The under surface of the forewing is yellowish with brown and dark yellow marginal markings, the underside of the hindwing is reddish brown with diffuse silver-white sub-
actinotis. marginal and central bands and dark yellow markings. — **actinotis** *Btlr.* (22 e ♀), from Costa Rica and Chiriqui, has more extended yellowish markings above and darker coloured under surface. The ♀ is above black-brown with yellow disc on the forewing, which is intersected by the dark veins; the underside the same.

C. manco *Dbl.* (= incerta *Dogn.*) (22 e), from Bolivia, has black-brown upper surface with sub-
manco. marginal and central markings on the forewing, and on the hindwing marginal and submarginal markings, all ashy grey, as is also the base. The underside of the hindwing is silver-white with narrow black markings and broad sulphur-yellow ones. The ground-colour of the forewing beneath is impure white with a marginal lunate line, which is sharp and black in the anterior part, black-brown and not sharp in the posterior, the black-brown submarginal band and similar coloured basal part with light stripes; in the apex there are sulphur-
philothea. yellow spots. — **philothea** *Fldr.*, from Colombia, is above somewhat more yellow, on the underside of the
philoscia. hindwing less yellow, but more strongly marked with black. — **philoscia** *Fldr.*, from Venezuela, is less yellow on the whole upperside and on the underside of the forewing still more yellowish; can scarcely be separated from *philothea.*

anaitis. **C. anaitis** *Hew.* (22 e), from Ecuador, has ash-grey-yellowish upper surface with black-brown margins and small light submarginal spots. The under surface is silver-white with sulphur-yellow, black and brownish markings.

reducta. **C. reducta** *Btlr.*, from Ecuador, is above like *anaitis,* but much smaller and all the spots of the upperside are ochre-yellow, irregularly coloured with purple-brown, the veins are much more broadly blackish, the hindwing has a row of small white marginal spots, the macular band on the underside of the forewing
boliviana. is lighter ochre-yellow and the forewing is more falcate. — **boliviana** *Btlr.* differs in the light ochre-coloured spots on the under surface, which shows scarcely any admixture of dark. Only known to me from the description.

sordida. **C. sordida** *Btlr.*, from Bolivia, has the general colouring of *anaitis,* but is less yellow, the spot at the end of the cell and the spots of the central row of the forewing next to the costal margin are smaller. Distal margin of the hindwing blackish, occupying almost half the wing and crossed by spots of the ground-colour. Beneath all the light marks are reduced and the brown areas much broader, the light bands are cream-coloured, not pure white, and the yellow stripes and spots of a deeper colour.

C. flisa *H.-Schäff.* (22e), from Colombia, has black-brown upper surface with white macular median band, submarginal and very small marginal white spots; in the ♀ the anal area of the hindwing is yellow. The under surface is black-brown with a white macular median band, in which on the hindwing yellow spots are placed, the marginal spots being present as above, but whitish yellow. *flisa.* 289

C. chrysolopha *Koll.* (= xeque *Mengel*) (22f), from Ecuador, has black upper surface, on the forewing a white macular median band and small diffuse submarginal white spots, the hindwing has a median band which is bright ochre-yellow in the middle and white anteriorly, and likewise small, diffuse submarginal white spots. The under surface of the hindwing is yellowish white with sulphur-yellow and black markings. The ♀ has rounder wings, is paler above and beneath and has on the hindwing also small light spots. *chrysolopha.* 2

C. apaturina *Btlr.* (22f), from Ecuador, is very similar to the preceding species, but has smaller white spots and on the hindwing a narrower and light yellow median band. The under surface of the hindwing has almost snow-white ground-colour and ash-grey submarginal markings and more black markings in the middle. *apaturina.* 2

C. toca *Dbl.* (22f), from Bolivia and Colombia, has black upper surface with white macular median band and diffuse white submarginal spots. Under surface of the hindwing white with black marginal band of lunate spots and black median band composed of wedge-shaped spots, and also black basal markings; in each cellule is a sulphur-yellow streak. Under surface of the forewing black with white submarginal and median bands as well as yellow marginal spots. — **detrita** *form nov.*, from the Upper Amazon, is much paler above and beneath. *toca.* 292 *detrita.* 293

C. scaeva *Stgr. i. l.* (22f), from Peru. Upperside dark brown with yellow or yellowish macular median band and submarginal spots of the same colour, underside paler yellow than in *toca* with brownish and (particularly on the hindwing) somewhat different markings; the line at the margin is composed of acute triangles. *scaeva.* 294

C. tomyris *Fldr.* (22f), from Colombia and Venezuela, is above similar to *toca,* but larger. Upper surface black with white macular median band and small white submarginal spots on the forewing, hindwing with yellowish median band. Under surface of the forewing black with submarginal and median macular bands and yellow marginal spots. Hindwing light yellow with black lines of lunate markings at the distal margin, black central and basal spots and a sulphur-yellow stripe in each cellule. ♀ not different. — **tamina** *Stgr. i. l.*, from Bolivia, has above a broader median band on both wings and on the under surface of the hindwing reddish-bluish colouring at the distal margin and in the basal area, with pure white ground-colour. *tomyris.* 295 *tamina.* 296

C. cora *Luc.* (= zancle *Fldr.*) (22f, g), from Venezuela and Peru, is above dark grey with marginal and submarginal black bands. The under surface of the forewing has submarginal and median white macular bands with small yellow spots and yellowish white marginal spots. The under surface of the hindwing is marked with a confusion of white, yellow, black, brown and bluish. *cora.* 297

C. uricoecheae *Fldr.* (22f), from Colombia, one of the most beautiful species of the genus, is very similar to *cora* on the upperside of the forewing, but has dark red hindwing with black distal margin and black macular median band. The under surface is also very similar to that of *cora,* but much lighter. *uricoecheae.* 2

C. cinerea *Btlr.*, habitat unknown. Forewing above ashy grey, costal margin and veins broadly black, distal quarter of the wing occupied by a broad black margin, in which are placed a row of whitish green spots and a row of very small white marginal spots, basal half of the hindwing ashy grey, irregularly scaled with black, distal half black with a row of whitish grey spots and a row of small sulphur-yellow marginal spots. Body blackish, palpi with two white lateral lines, throat with a small yellow spot at each side. Under surface very similar to that of *uricoechiae,* but the grey areas more slate-coloured, the yellow marks deeper in colour, all the light markings sharper and those on the forewing broader. Only known to me from the description. *cinerea.* 29

C. vulnerata *Btlr.*, from Ecuador, is similar to *uricoecheae,* but the basal area of the forewing also is red, the median band narrower, the red of the hindwing more restricted and greyer, the median bands are smaller, lighter red and diffuse, the inner margin is whitish. On the under surface the markings are sharper, the yellow marks more glossy, the grey central band of the hindwing is fairly straight on its inner side and is on that account broader, its white and yellow borders are narrower, the marginal spots broader, somewhat less angled. Only known to me from the description. *vulnerata.* 30

C. tricolor *Btlr.*, from Ecuador, is also similar to *uricoecheae,* but all the spots on the upper surface of the forewing are glossy lemon-yellow, the scarlet of the hindwing is less brilliant, the spot towards the base more reduced, a row of yellow marginal spots present. On the under surface the white and yellow markings are so much reduced that the ground-colour appears grey. *tricolor.* 301

C. paradoxa *Stgr. i. l.* (22g), from Peru, is likewise a very beautiful species. Underside shiny black with light yellow submarginal and central spots on the forewing and bright yellow median band and submarginal spots on the hindwing. Under surface of the forewing black with submarginal and median white *paradoxa.* 3

macular band and small yellow marginal spots. Under surface of the hindwing white with black marginal line and black lunate line before it, black median sagittate spots and markings of the same colour in the basal area, all the black markings edged with pale ochre-yellow and small ochre-yellow stripes in all the cellules.

303 *teutila.* **C. teutila** *Dbl.* (= sebennica *Luc.*) (22 g). Sexes rather different. Upper surface glossy blue-black, ♂ with narrow white median band sprinkled with dark, and small marginal and submarginal spots of the same colour, in the ♀ the median band at least double as broad and dark yellow. Under surface grey-black, forewing with the markings as above and small yellow marginal spots, hindwing with yellow, white and black spots. From Mexico.

304 *marcapita.* **C. marcapita** *Thieme i. l.* (22 g), from Bolivia, has the forewing black above with wedge-shaped central yellow spot and yellow submarginal spots, upper surface of the hindwing yellow with black marginal lunate line, blackish, diffuse central spots and narrowly black veins. Under surface yellow with black marginal lunate line on both wings, black submarginal band and blackish basal part of the forewing, black wedge-spots and black markings in the basal part of the hindwing.

305 *clara.* **C. clara** *spec. nov.* (22 g), from Ecuador, has the upperside of the forewing light yellow with broad, glossy black margin, in which are placed a row of light yellow submarginal spots and two light yellow spots at the costal margin on the discocellulars. Upper surface of the hindwing light sulphur-yellow, strongly dentate, the dentition edged with black and the veins narrowly black, basal part of both wings likewise black. Under surface of the forewing white with black marginal and submarginal dentate markings, small yellow spots in the apex, the discocellulars and the basal area black. Hindwing yellow with narrow black marginal, medial and basal markings, all the veins narrowly black.

306 *eximia.* **C. eximia** *spec. nov.* (22 g), from Bolivia, is similar to the preceding species, but smaller, hindwing likewise dentate, though not so strongly. Above on both wings with larger black basal area, forewing light yellow with black marginal and submarginal bands as well as black median spot, hindwing deeper yellow with dentate black marginal band and submarginal black spots. Under surface of the forewing yellower, that of the hindwing lighter, the latter with less deeply dentate black markings, likewise all the veins narrowly black.

307 *radiata.* **C. radiata** *Koll.*, from Colombia, is similar to *nimbice,* but yellower, the under surface of the hindwing is much marked with red, and in the centre of the hindwing are two white spots.

308 *emeris.* **C. emeris** *Bdv.* Size and shape as *nimbice.* Forewing whitish yellow with blackish, proximally dentate margin, the apex uniformly blackish, a small blackish streak at the discocellular, joined to a larger spot at the apex. Hindwing ochre-yellow, distal margin with a row of small, wedge-shaped black spots along the veins. Under surface of the forewing as the upper, but with a row of yellow spots at the margin. Under surface of the hindwing blackish with a row of yellow marginal spots and ten or eleven white spots marked with yellow, the largest of which fills up the whole of the cell, a large blood-red spot at the base. Chile and Brazil. — Only known to me from the description. This and the preceding species might well be placed after *nimbice.*

309 *susiana.* **C. susiana** *Hopff.* differs from *chelidonis* by the longer, narrower forewing, which has exactly the same shape as in *nimbice,* and further by the ochre-yellow spots and bands of *chelidonis* being white, as well as by the form of the discal band. The latter is considerably narrowed in *susiana,* especially in the forewing, where it is only half as broad as in *chelidonis* and more divided into spots, the veins being broader. Its white colour, which in the forewing is dusted with black atoms, has in the hindwing a slightly yellowish tinge. The marginal dots at the end of the internervular folds, which are only indicated in *chelidonis,* here become distinct but very small white triangles, on the other hand the small white spot in the cell is extremely minute and indistinct. — Only known to me from the description; might be placed after *chelidonis.*

310 *alma.* **C. alma** *Hopff.*, from Bolivia, is rather unlike the other species on the upperside. It is distinguished by its yellowish white ground-colour, by the deep black veins of both wings, by the broadly black costal margin of the forewing, which occupies the greater part of the cell and of the base, and by the distal margin of the forewing, which is broad at the apex, narrows behind and is proximally bounded by a sharp, straight line and adorned in its whole length with small, fine, wedge-shaped yellowish white spots, whilst the rather broad black distal margin of the hindwing mostly shows yellowish white dots between the veins; the under surface of the hindwing resembles that of *telasco* and *pitana Fldr.,* but its markings are much more diffuse and indistinct. — Only known to me from the description. Might well be placed after *sisamnus.*

311 *suadela.* **C. suadela** *Hopff.*, from Bolivia, has the forewing broader than in *suasa,* the ground-colour of the upper surface is darker, the median macular band reduced to small obsolescent spots, the submarginal spots are very small, dot-like, but sharp, on the hindwing the median band is completely obsolete, the submarginal spots are very small and indistinct. The under surface has smaller white spots and less yellow markings. Should be inserted after *suasa.*

15. Genus: **Daptonoura** *Btlr.*

The species of this genus resemble *Appias*, but do not show such strong sexual dimorphism. The secondary sexual character peculiar to the *Appias*-♂♂ (tuft of hair on the underside of the abdomen) is wanting in those of *Daptonoura*. In the neuration this genus agrees with *Pieris* except in the shape of the precostal, which is curved proximad. This genus is confined to tropical America. Recently the name *Melete Swains.* has been employed for this genus, but it would be better to continue to use the well-hnown name *Daptonoura* instead. *Heliochroma Btlr.* appears to belong here. The species of *Daptonoura* are extraordinarily prone to the formation of local and aberrational as well as seasonal forms, but it is very difficult correctly to fix the limits of either the species or the individual forms. The butterflies, which are very common locally, love the shade of the woods, are fond of congregating at water and have a slow, gentle flight. They fly principally in December to January, singly all through the summer.

D. lycimnia *Cr.* (= flippantha *F.*) (23 a) ~~presumably~~ comes from Surinam; the form from Venezuela, *lycimnia.* 31
a specimen of which is figured, is probably not essentially different. Upper surface white with black apical
and distal margin of the forewing and narrow ones of the same colour on the hindwing; sometimes a black
spot in the middle of the costal margin of the forewing. Under surface yellow with broader black-brown
distal margin and a black-brown spot at the costal margin of the forewing on the discocellulars; ground-
colour yellow, lighter posteriorly on the forewing. — **harti** *Btlr.*, from Trinidad, is smaller than *eurymnia* *harti.* 313
Fldr., has the distal margin of the forewing more concave and the marginal band somewhat narrower,
especially behind the 2. median vein; the hindwing sulphur-yellow, the dark brown distal margin very
narrow; ground-colour of the under surface glossy canary-yellow, the basal area deep orange. The ♀ differs
but little. — **phazania** *Fruhst.*, from Bahia, comes between *lycimnia* and *pantoporia Hbn.* — **pantoporia** *Hbn.*, *phazania.* 314
from South Brazil, is a very variable form; it has the distal margin of the hindwing sprinkled with yellow *pantoporia.* 31
or sometimes only a narrow black marginal line. It includes the following forms: ♀-f. **fiora** *Fruhst.* (23 d), *fiora.* 316
with dark yellow ground-colour on both surfaces, broader marginal bands and larger spots in the distal
margin of the hindwing above; ♀-f. **pertho** *Fruhst.*, with pure white forewing and dark lemon-yellow *pertho.* 317
hindwing margined with bright red. — **limnoria** *Godt.* forms the transition to *pantoporia Hbn.* (from Espiritu *limnoria.* 318
Santo and Rio de Janeiro), which again is only a little different from **petronia** *Fruhst.*, from Santa Catharina, *petronia.* 319
Theresopolis and Rio Capivary. Upper surface of the forewing slightly yellowish white with narrow black
apical and distal-marginal markings, the hindwing light sulphur-yellow with very narrow black margin. Under
surface deeper yellow with broader dark brown distal margin and spots of the same colour at the middle
of the costal margin of the forewing; as always, the posterior area of the forewing is much lighter, almost
white. With it occurs ♀-f. **daulia** *Fruhst.*, with the forewing white above instead of light yellow. — *daulia.* 320
paulista *Fruhst.*, from São Paulo, has broader black apical and distal-marginal markings on the forewing, *paulista.* 321
pure white upper surface and straw-yellow colour on the under surface. But ♂♂ also occur in which the
upperside of the hindwing is a beautiful lemon-yellow and the underside almost the same, but deeper yellow:
paula *form nov.* (23 a). The ♀♀ vary likewise; if the almost white ♀♀ are referred to *paulista*, the strongly *paula.* 32
yellow coloured ♀♀ with broader black markings must be treated as *paula*-♀♀. — **gargaphia** *Fruhst.*, from *gargaphia.* 3
Rio Grande do Sul, is smaller than *petronia*, has the brown-black distal margin of the hindwing scarcely
visible in the ♂ and only about 1 mm. broad in the ♀ and narrower markings at the apex and distal margin
of the forewing. Under surface in the ♂ whitish yellow, in the ♀ pale straw-colour; rare. Among it occurs:
f. **amarella** *Fruhst.*, entirely yellow in both sexes, also the ♂ with black cell-spot on the forewing. — *amarella.* 32
calymnia *Fldr.* (= leucadia *Fldr.*), from the Rio Negro, is yellow and has a broad distal margin to both *calymnia.* 32
wings above and beneath and in the margin of the hindwing 4 yellow spots; f. **theodora** *Fruhst.*, the rainy- *theodora.* 32
season form, is more beautiful yellow, has still broader dark margins, is suffused with light yellow on the
basal half of the hindwing above and the underside, with the exception of the posterior half of the forewing,
is almost canary-yellow. — **marica** *Fruhst.* (= leucadia *Stgr.*), from the Upper Amazon, has very broad *marica.* 327
apical border and more or less yellowish ground-colour, also very narrow distal margin of the hindwing.
f. **moesia** *Fruhst.* differs from it in the much broader distal border of both wings. — **eurymnia** *Fldr.*, *moesia.* 32
from Colombia, has above mostly an apical spot which is almost rectilinear towards the base, and very narrow *eurymnia.* 329
black distal margin on the hindwing. The under surface is sulphur-yellow. The dry-season form, **asta** *Fruhst.*, *asta.* 330
has narrower and more deeply incised apical spot on the forewing, yellowish instead of white upper surface
and pale ochre-yellow under surface. — **aelia** *Fldr.*, from Ecuador and Colombia, has the upper surface *aelia.* 331
white with rather broad apical spot, unevenly defined proximally, and very narrow black margin on the
hindwing. The under surface is greenish yellow with conspicuous ochre-yellow basal spot on the hindwing.
— **huebneri** *Btlr.* (23 d), from Brazil (Leopoldina), is smaller than *limnoria*, the black apical margin narrower, *huebneri.* 332
regularly dentate proximally, the hindwing is glossy sulphur-yellow with broad orange-yellow, black-edged
distal margin. The ♀ is likewise smaller than *limnoria*, the median spot is sometimes connected by a stripe
with the distal margin, the hindwing as in the ♂, but the orange-yellow distal margin broader. — **napona** *napona.* 333
Fruhst., from Ecuador (Rio Napo), is larger than *aelia*, distal margin of both wings broader, that of the hind-
wing as in *moesia*, showing through from the underside, in the ♂ the apical third of the forewing beneath

light yellow like the hindwing, in the ♀ the forewing pale yellowish, the hindwing sulphur-yellow, the black
distal margin with five diffuse canary-yellow spots, under surface of the forewing sulphur-yellow, of the
334 *pistoria.* hindwing canary-yellow. ♂-f. **pistoria** *Fruhst.*, from the Rio Napo (Ecuador), has still broader distal margin
335 *latilimbata.* of both wings and pure white under surface. In ♂-f. **latilimbata** *Btlr.*, from Ecuador, the distal margin of
336 *hypoxantha.* both wings is broad and brown. — **hypoxantha** *subsp. nov.*, from Cuba, is smaller, has narrower black
337 *palaestra.* margins and yellow under surface. — **palaestra** *Hopff.*, from Peru (Pozuzo), has deep black apical third,
regularly defined proximally, narrow, sometimes extremely narrow black margin, pure white upper surface
338 *pedrosina.* and very light yellow under surface with broader distal margin on the hindwing. With it occurs f. **pedrosina** *Btlr.*, with the under surface completely white. — **maeotis** *Fruhst.*, from Peru, has the wings nar-
339 *maeotis.*
rower. Upper surface in both sexes entirely white, ♂ with obliquely placed black apical spot, which extends
to the 1. median vein, ♀ with rectangular black median spot on the forewing, under surface light ochre-
340 *iphigenia.* yellow. Among them occur the following aberrant forms: **iphigenia** *Fruhst.*, with broader, deep black apical
spot, wings on both sides pure white, ♂ with thread-like black distal margin, widened into small spots at
the middle veins, ♀ with broad black discocellular on the forewing and broader distal margin on the hind-
341 *velia.* wing, marked with five white dots, under surface with grey-black distal margin on both wings; **velia** *Fruhst.*,
from Tarapoto, has the shape of *maeotis*, ♂ above purer white with equally broad, deep black distal margin
on both wings above and beneath as in *iphigenia*, under surface of the forewing pure white except the sub-
342 *radiata.* apical area, hindwing above beautiful light yellow; **radiata** *Fruhst.*, from Tarapoto, has the apex of the fore-
wing slightly rounded, upper surface in the ♂ yellowish white, distal margin moderately broad, hindwing
343 *myrtis.* above yellowish, distal margin brown, running off proximally into fine streaks along the veins. — **myrtis**
Fruhst. (= lycimnia *Stgr*,), from South Peru (Cuzco), has the upper surface white with narrow black apical
part and also narrow black margin on the hindwing, underside of the hindwing lemon-yellow, margin grey-
344 *donata.* brown. — **donata** *Fruhst.*, from Bolivia (Coroico), recalls *peruviana Luc.* Upper surface white, hindwing
especially at the inner angle slightly suffused with light yellow; under surface similar to *maeotis*, underside
of the hindwing and (as usual) the costal margin of the forewing canary-yellow, apical spot narrow, black-
brown, proximally strongly undulate, black cell-spot pointed posteriorly, hindwing with very narrow black
marginal line, which only at the veins assumes the form of small pointed teeth; probably a dry-season form.
345 *bianca.* f. **bianca** *Fruhst.*, from Bolivia (Yungas de la Paz), is above entirely white without any yellowish tinge,
with extended deep black apical spot and the distal margin of the hindwing scarcely 1 mm. broad, under
surface pure white with pale yellowish subapical area and the anterior half of the hindwing slightly suffused
346 *pseudomyrtis.* with yellow; distal margin grey, on the hindwing about 2 mm. broad, cell-spot distinct. — **pseudomyrtis**
Fruhst., from Yungas de la Paz, recalls *maeotis* and in the shape of the wings *aelia* and *myrtis*, but differs
from *myrtis* by a somewhat more extended black distal margin on both wings and by the apical spot on
347 *monica.* the underside of the forewing being brown instead of black. — **monica** *Fruhst.*, from Bolivia, recalls *iphigenia* by the very broad apical margin of the forewing and the ventricose projection in the middle of the
hindwing; the dull chalk-white hindwing has a light yellow distal margin about 2 mm. broad, which is
adorned with some black spots. Under surface with brown distal margin and triangular spot at the apex
348 *leucadia.* of the cell of the forewing, otherwise washed-out straw-yellow. — **leucadia** *Fldr.* (23 a), from the Rio Negro and
Bolivia, is white above, with moderately broad black apical spot on the forewing and very narrow distal
margin on the hindwing; the black median spot of the forewing shows through somewhat above; underside
of the forewing light sulphur-yellow, darker at the costal margin, hindwing light ochre-yellow, the narrow
distal margin of the hindwing, the apical and the oblong median spot as well as the costal margin of the
forewing are grey-black.

349 *peruviana.* **D. peruviana** *Luc.* (23 a), from Peru (Pozuzo), occuring up to 10,000 ft., has white upper surface,
a narrow, sharply dentate apical spot on the forewing and very narrow, sharp distal margin on the hind-
wing; under surface whitish yellow with slight gloss, sharp black veins on the hindwing, diffuse apical spot
350 *yolanda.* and similarly indistinct discocellular on the forewing. f. **yolanda** *Fruhst.*, from Peru (Chanchamayo), is
351 *galatia.* small, has larger black apical spot, and the under surface of the hindwing is straw-yellow. — **galatia**
Fruhst., from Bolivia, has the upper surface yellowish, the black apical spot reduced and the under surface
almost without markings except for the black veins of the hindwing, only the apex of the forewing being
352 *regnidas.* slightly tinged with grey. — **regnidas** *Fruhst.* (23 c), from Ecuador, shows extended black apical margin of
the forewing, which, however, is more feebly dentate. ♀ orange-yellow.

353 *laria.* **D. laria** *Fldr.* is the Colombian form of **louisella** *Fruhst.* (23 a), from Peru, from which it differs
354 *louisella.* but little. Both, as also the following Bolivian form, are probably only forms of *peruviana*. In *louisella* the
upper surface is pure white, the not very broad apical spot of the forewing and the sharp and very narrow
distal margin of the hindwing are deep black; the under surface of the forewing is yellowish white with
grey-black apical spot, the hindwing is somewhat darker yellowish with ochre-yellow basal spot, grey-black
355 *boliviana.* marginal line and the extremities of the veins black. — **boliviana** *Fruhst.*, from Bolivia, has the wings still
more rounded than *louisella*, the apical spot less narrow and more strongly dentate, hindwing with scarcely
perceptible black distal margin, ground-colour pure white, underside with light grey-brown apical spot, hind-
wing with narrow black marginal line and the extremities of the veins slightly tinged with black.

D. polyhymnia *Fldr.* (= phaenna *Fruhst.*) (23b), from Colombia, is lemon-yellow above with broad black margins, the discocellular of the forewing is slightly suffused with black, under surface deeper yellow with broader grey-black margins, in which are placed diffuse yellow spots, rather broad grey-black discocellular spot and similar costal margin of the forewing, as well as ochre-yellow basal spot on the hindwing.

polyhymnia. 35

D. isandra *Bdv.* (23b), from Mexico, is impure white above with small grey-black distal-marginal markings on the forewing. Under surface of the hindwing light ochre-yellow with deep ochre-yellow basal spot, forewing somewhat lighter, in the posterior part almost white, with grey scaling on the discocellular; ♀ light orange-yellow. — Fruhstorfer has named the Honduras form **kleta.** Its ♀♀ are above pale yellowish white, beneath either light canary- or ochre-yellow.

isandra. 357
kleta. 358

D. florinda *Btlr.* (= chiricana *Stgr.*) (23b), from Veragua and Chiriqui, has somewhat darker yellow ground-colour than *polyhymnia,* very narrow black apical and distal-marginal markings on the forewing and black marginal line on the hindwing. The under surface is deeper yellow with broader black distal margin on the forewing, in which yellow spots are placed, similar black marginal band on the hindwing and black discocellular on the forewing. The female has broader marginal markings and the hindwing ochre-yellow above and beneath. — **monstrosa** *Btlr.* (= panamensis *Stgr.*), from Veragua and Panama, has the upper surface of the forewing white in the ♂, in the ♀ the hindwing somewhat ochre-yellow. Larva according to H. Ribbe similar to that of *Gonepteryx rhamni,* lives on the calabash tree. — **anceps** *Stgr.*, from Chiriqui, has in the ♂ only a yellowish tinge at the inner angle, the hindwing otherwise white, the ♀ has dull yellow hindwing. — **chagris** *Stgr.*, from San Juan on the Rio Chagres, has the forewing white beneath with yellow costal margin, the ♀ has larger yellow spots in the black distal margin of the hindwing.

florinda. 359
monstrosa. 360
anceps. 361
chagris. 362

D. limbata *Ky.*, from Ecuador, is white in the female, ash-grey at the base and the costal margin of the forewing, the brown distal margin reaches to the anal angle, forewing with narrow ash-grey margin; under surface white, without spots, hindwing somewhat yellowish, club of the antenna spotted with yellow. ♂ unknown.

limbata. 363

D. leucanthe *Fldr.*, from Ecuador and Colombia, differs from **inaequalis** *Btlr.*, from Bolivia and Peru, by its larger size. In *inaequalis* the distal margin of the forewing is straighter, the black apical margin narrower and proximally dentate, only the fringes (not the margin also) of the hindwing are blackish. ♂ above white, ♀ glossy orange, at the costal margin and in the cell of the forewing canary-yellow, beneath the apical area of the forewing and the whole of the hindwing are ochre-yellow, the ♀ is beneath saffron-yellow.

leucanthe. 364
inaequalis. 365

D. salacia *Godt.* (~~= vecticlusa *Btlr.*~~) (23c, d), from Mexico, is above white with narrow black apical margin on the forewing and similar marginal line on the hindwing, at the costal margin of the forewing is a subapical black spot, the markings of the under surface show through somewhat. The under surface of the hindwing is yellow with brown distal margin and a similarly coloured median band, which extends from the costal margin to beyond the 1. median vein, becoming gradually narrower, the forewing is white, with ochre-yellow basal area, a large subapical yellow spot which is bounded by the brown apical marking and proximally by a diffuse spot, and brown discocellular. The ♀ is of more compact shape, with paler ground-colour above and beneath and more developed brown markings (only known to me from figures). — **cubana** *Fruhst.*, from Cuba, is above purer white, on the under surface of the hindwing purer yellow, and has on the forewing less black-brown markings in the ♀, while on the other hand at the distal margin of the hindwing, especially above, they are somewhat broader.

salacia. 366
cubana. 367

D. idiotica *Btlr.* (23c) (locality unknown), for which Butler has erected the genus *Heliochroma* and which is only known to me from the figure, probably belongs in this genus (not to *Hesperocharis*). Upper surface of the forewing lemon-yellow, of the hindwing orange-yellow, under surface likewise orange-yellow except for the yellow posterior part of the forewing; no markings on the under surface of the hindwing except two small brownish spots at the costal margin; body blackish.

idiotica. 368

16. Genus: **Mathania** *Oberth.*

This genus differs sufficiently from *Pieris* and *Daptonoura* not only in the peculiar contour of the wings but also in neuration. The 2. subcostal vein does not arise as in *Daptonoura* at the upper angle of the cell, but far beyond it, not far from the apex; *Mathania* further differs from *Pieris* by the subcostal being only four-branched and by the precostal being curved proximad. The palpi are strikingly hairy. The butterflies have mostly a leaf-like under surface. They appear to be purely inhabitants either of the high mountains or of districts in western South America with temperate climate.

M. leucothea *Molina* (= gayi *Blanch.*) (23b), from Chile, is the most like the *Daptonoura*-species. The upper surface is pure white, the under surface yellowish white with more strongly yellowish apex to the forewing and more or less inconspicuous dark clouded markings on the hindwing. It is true this species does not altogether agree with the others in neuration and wing-contour, but unless a separate genus is erected it is probably best to place it in *Mathania.* It is possible that the name *leucothea* really covers two species; my material, however, is insufficient to settle this question.

leucothea. 36

70 *agasicles.* **M. agasicles** *Hew.* (23 b), from Bolivia and Peru, is above lemon-yellow with grey apex to the forewing, the underside of the hindwing and the apex of the forewing bear undulate grey-green lines, through the middle of the hindwing runs a distinct stripe (as in the Indian *Hebomoia*-species), the costal margin of the hindwing is somewhat darker, the greater part of the forewing beneath is impure yellow and the veins are distinctly visible.

371 *gaujoni.* **M. gaujoni** *Pouj.* (= agasicles Hew.?), from western Ecuador (Loja), is as large as *esther,* similar in shape to *Dapt. idiotica,* but the shape of the forewing more falcate, hindwing somewhat lengthened at the distal margin. Upper surface light lemon-yellow, apex of the forewing light brown-green. Under surface of the forewing as above, but paler, apex marbled with white-yellow. Under surface of the hindwing olive-coloured, anteriorly much darkened and marbled like the apex of the forewing; it has a transverse, yellowish olive longitudinal line. Between the three median veins are strongly darkened oblique lines, which give the hindwing the appearance of a leaf. Only known to me from the description.

372 *aureomaculata.* **M. aureomaculata** *Dogn.* (23 d), from western Ecuador (Loja), is similar to *gaujoni,* but the hindwing is rounded at the anal angle. Upper surface light lemon-yellow, the apex of the forewing olive-brown, very similar to that of *gaujoni.* Under surface of the forewing uniform lemon-yellow, the apex as above, but almost the whole of the cell is occupied by an orange-yellow spot, which extends along the costal margin and sends out rays between the adjacent veins. Under surface of the hindwing yellow, finely powdered with olive-coloured atoms, more strongly so at the costal margin, and four yellowish submarginal dots. — A ♂ before me from North-East Peru (Huancabamba) answers to this description; another ♂ from Hillapani is above very light yellow, almost white, also beneath much more whitish, the orange-yellow spot in the cell of the forewing somewhat smaller and the yellow interneural stripes are narrower in the anterior part of the wing and altogether absent in the posterior part: **pallida** *subsp. nov.* (23 d). 373 *pallida.*

374 *esther.* **M. esther** *Oberth.* (= aureomaculata *Dogn.*?) (23 b), from Bolivia, is deeper yellow than *agasicles,* particularly on the proximal part of the forewing, the apex of the forewing has even less grey marking. The under surface of the hindwing is grey-greenish, darker at the costal margin, through the middle of the hindwing from the base to beyond the cell extends an indistinct yellowish stripe; between the median veins are placed four yellowish submarginal dots. The anterior proximal part of the forewing beneath is orange-yellow, the rest light yellow.

17. Genus: **Hesperocharis** *H.-Schäff.*

This genus is distributed from Mexico to South Brazil. They are plain white or yellowish insects with mostly small markings on the upper surface and characteristically modified lunate markings beneath. Of the four subcostal veins only the first branches off proximally to the discocellulars, the second nearer to the apex, the third and fourth branches form a short fork in the apex. Both radials run free, but the upper discocellular is very small. The costal margin of the hindwing is somewhat flexuose, the precostal curved proximad. The *Hesperocharis* are lively little insects, which fly in the most burning sunshine (between 10 and 1 o'clock), and therefore scarcely deserve their generic name.

375 *antipator.* **H. antipator** *Druce.* Upper surface of both wings pure white, hindwing very long. Under surface of the forewing white, base, veins and apex spotted with yellowish scales; hindwing yellowish white with dark veins. Nearly allied to *leucania Bdv.,* but differing from it by the elongated hindwing, whiter colouring and complete absence of markings on the underside. Vera Paz. — Only known to me from the description.

376 *leucauia.* **H. leucania** *Bdv.* Shape as in *ilaire* (*drusilla*-♂), wings rounder. Upper surface without spots, greenish white as *Catopsilia florella* and *pyranthe.* Under surface of the forewing of the same colour, distal margin broadly yellowish. Under surface of the hindwing anteriorly greenish yellow, in the middle more grey, but little prominent oblique, curved, flexuose markings at the distal margin, interrupted by the veins. Brazil. — Only known to me from the description.

377 *catasticta.* **H. catasticta** *spec. nov.* (23 e), from São Paulo, is superficially nearly allied to the *Catasticta*-species. Upper surface of the forewing pale sulphur-yellow, of the hindwing light ochre-yellow. The forewing has a rather broad black distal margin, in which small yellowish subapical spots are placed, and also a very irregular black spot on the discocellular and a black costal-marginal stripe, the hindwing has black triangular spots at the distal margin. Under surface of the hindwing yellowish white with black and yellow marginal spots, ground-colour of the hindwing white with black triangular distal-marginal spots, a submarginal lunate band of the same colour, a large indistinct black spot near the inner margin; in all the cellules there are placed yellow spots, at the base a red spot.

378 *nera.* **H. nera** *Hew.* (23 e), from Ecuador and Bolivia, is above white, at the base of the hindwing yellowish and at the apex of the forewing grey-black. Under surface of the forewing white, apex paler grey than above and yellowish, ground-colour of the hindwing white with diffuse grey-blackish marginal, submarginal and median spots, as well as yellow streaks in the cellules of the hindwing and orange-yellow basal spot. — The somewhat smaller **boliviana** *form. nov.,* from Bolivia, which has very weak markings 379 *boliviana.*

beneath, appears to be a seasonal form. — **nereis** *Fldr.* (23 f), from Colombia, has the apical marking of *nereis.* 380
the forewing above broken up into stripes and the under surface of the hindwing somewhat lighter —
amazonica *Fruhst.*, from the Upper Amazon, has broader black apical marking on the forewing and rather *amazonica.* 381
broad black distal margin on the hindwing. The under surface is white with grey-black markings and sharp
orange-yellow basal spot. — **flavescens** *form. nov.* (23 e) (aberration or seasonal form?) differs from it beneath *flavescens.* 38
by a large light yellow spot in every cellule of the hindwing and yellowish stripes at the proximal part of
the dark apex of the forewing. — **nilios** *Fruhst.*, from the Rio Waupes, has a broader, dentate distal margin of *nilios.* 383
the hindwing and also darker and broader markings on the hindwing beneath, by which it is distinguished
from the less marked **nymphaea** *Möschl.*, from Surinam. — **flaveola** *Fruhst.*, from Ecuador, is above and *nymphaea.* 384
beneath a beautiful dark yellow, apex of the forewing beneath with obsolescent yellowish spots. — **aphaia** *flaveola.* 385
Fruhst., from the Rio Waupes, is a form of *nilios* with the upperside of the hindwing light yellow. — **aida** *aphaia.* 386
Fruhst., from Peru, is smaller than the preceding forms and has the upper surface of the hindwing yellow. *aida.* 387
— Among it occurs **minia** *Fruhst.*, from Southern Peru, probably as a dry-seasonal form. Upper surface *minia.* 388
white, hindwing without black distal margin. — **nirvana** *Fruhst.*, from Bolivia, has the upper surface pure *nirvana.* 389
white with only moderately broad black apical spot, under surface almost pure white with completely diffuse
black markings, only the apex of the forewing broadly suffused with light grey and a few remnants of black
spots at the costal and distal margins of the hindwing, where also a few traces of the interneural stripes
are preserved. To it belongs as a rainy-seasonal form **vitha** *Fruhst.*, similar to *amazonica*, but the hindwing *vitha.* 390
with narrower black distal margin, otherwise entirely white, slightly suffused with ochre-colour at the base.
Beneath at the apex of the forewing broadly grey-black with large whitish pointed spots, under surface of
the hindwing with thick grey-black reticular marking and the apex of the cell broadly margined with grey;
without orange-coloured interneural stripes.

H. costaricensis *Bates* (23 f), from Costa Rica and Chiriqui, is above white with very slight dark *costaricensis.* 39
markings at the apex of the forewing. Under surface of the hindwing and of the apex of the forewing dingy
light yellow with indistinct dark markings, veins slightly dark, posterior part of the forewing white.

H. nereïna *Hopff.* (23 f), from Peru and Bolivia, is above yellowish white with blackish markings in *nereïna.* 392
the apex of the forewing and light yellow interneural stripes. The under surface of the forewing has yellow
apex with dark markings and much more distinct yellow stripes; the latter are still more conspicuous on
the hindwing and the hindwing has also blackish distal-marginal spots, a submarginal lunate line and black
veins. — **elea** *Fruhst.*, from Bolivia and Peru, has dark yellow ground-colour above and beneath. — **phainia** *elea.* 393
Fruhst., from Peru, is a variety of *nereïna* with white upper surface and delicate orange-coloured interneural *phainia.* 394
stripes beneath, — In **chloris** *form. nov.*, from Bolivia (Coroico), the upper surface is delicately greenish *chloris.* 395
yellow-white and the black apical marking of the forewing is broken up into separate small spots. The under
surface is purer white and the dark and yellow markings less sharp:

H. anguitia *Godt.* (23 f), from South Brazil (Rio de Janeiro, São Paulo, Santa Catharina, Rio Grande *anguitia.* 396
do Sul), is above white, sometimes (especially in the ♀) yellowish white and very little or scarcely at all
marked with black at the apex and the distal margin of the forewing. The under surface of the hindwing
and of the apex of the forewing is yellowish, the rest of the forewing white, on the hindwing and at the
apex of the forewing blackish hook-shaped markings. Both the colouring and the markings of the under
surface are somewhat variable. The ♀♀ have rounder wings and mostly even less markings. Seasonal forms
apear to occur, which, however, differ very little.

H. catogramma *Koll.*, from Colombia, is allied to *anguitia*, larger; hindwing obtusely dentate, upper- *catogramma.* 397
side white with a slightly yellowish tinge, distal margin and apex spotted with black; hindwing without
spots. Under surface with pale saffron-yellow scaling on the forewing as above, only the spots are here
changed to fine streaks, veins of the hindwing black, a zigzag line parallel to the distal margin. — Only
known to me from the description.

H. erota *Luc.* (23 e) occurs in the same localities as *anguitia*. It is somewhat larger, with more mark- *erota.* 398
ings and has as characteristic mark a short, broad black streak, directed basad, on the under surface of
the hindwing at the lower discocellular.

H. marchalii differs from the preceding species by its somewhat elongated and dentate hindwing;
the distal margin of the forewing is also not smooth as in the other species. — **marchalii** *Guér.* (23 f), from *marchalii.* 39
Colombia and Venezuela, is above slightly yellowish white with small, pointed marginal and submarginal
black spots on the forewing and a black distal-marginal line on the hindwing, which is somewhat thickened
at the ends of the veins. The under surface is marked quite similarly to the preceding species, but the black
streak at the lower discocellular is absent. — **coloë** *Fruhst.*, from Peru and Bolivia, has the under surface *coloë.* 400
pale sulphur-yellow and the hindwing more deeply dentate. — **sulphurescens** *form. nov.*, from West Colom- *sulphu-* 401
bia (Cauca Valley), has the upperside light sulphur-yellow and the underside somewhat deeper yellow. — *rescens.* 402
masonia *Fruhst.*, from Ecuador, has dark sulphur-yellow upper surface and "more pointed" (more elongated *masonia.* 403
posteriorly?) hindwing. Flies in April and again in October.

18. Genus: **Leucidia** *Dbl.*

This genus contains the smallest forms of Pierids and is confined to tropical America, for the statement that one species (*impura Voll.*) also occurs on Timor in the Indian Ocean is undoubtedly incorrect. The Leucidias have an extremely weak flight, for they fly so slowly that they can be caught with the hand in the air. The cause of this want of swiftness in flight lies probably (apart from the weakness of the body) in the form of the wings; the forewing is so very much rounded that it can hardly be said to have an apical angle. In structure this genus is more nearly allied with the superficially similar *Pontia* from India and Africa. The antennae are scaled along the whole length and gradually thickened to a small club. The subcostal is four-branched, the first branch arising far before the end of the cell and the second soon after it, the third and fourth branches form a short fork. The upper radial anastomoses to the half with the subcostal, consequently the upper discocellular is wanting. The hindwing has an almost straight costal margin, only very weakly emarginate, the simple precostal is curved proximally and the subcostal and upper radial have a common stalk. It is doubtful whether the forms erected as separate species are really independent or only forms of one or two species.

404 ✓ *brephos.* **L. brephos** *Hbn.* (= leucoma *Bates?*) (24 f), occurring from Venezuela to South Brazil (São Paulo), is white with a very slight yellowish tone, sometimes there is a fine blackish line at the anterior part of the forewing. The under surface is white.

405 ✓ *pygmaea.* **L. pygmaea** *Prittw.* (24 f), from Brazil (Rio de Janeiro, São Paulo, etc.), is above and beneath yellowish white with narrow blackish distal margin on the upperside of the forewing.

406 *exigua.* **L. exigua** *Prittw.* (24 f), from Venezuela and the Brazilian province of Rio de Janeiro (Corcovado and Leopoldina) is larger, yellow, and has a considerably broader black distal margin on the forewing, which extends to the inner angle.

407 ✓ *elvina.* **L. elvina** *Godt.* (= impura *Voll.*) (24 f), from Brazil (e. g. São Paulo), has slightly yellowish white upper surface and more strongly yellowish under surface, with rather broad black distal margin of the forewing above. My specimens of this species completely agree with the description and figures of *impura,* said to be indigenous to Timor.

19. Genus: **Terias** *Swains.*

This genus, which in the eastern hemisphere only extends a little beyond the tropics, occurs in America much further north, a few species advancing as far as the southern boundary of Canada. Though the *Terias* are mostly only small species, their richness both in species and individuals makes them quite a feature of the fauna. Their agility varies considerably; whilst the species with the apex of the forewing pointed (e. g. *gundlachia*) are good fliers, the round-wingèd species (e. g. *albula*) scarcely surpass *Leucidia.* With this genus begins the series of those Pierids which E. Schatz includes under the general name of "Dryads"; these are Pierids with the antennae short, strong, mostly without clubs, only gradually thickened towards the end and but rarely having a distinctly formed club. The species of *Terias* are mostly small, only exceptionally medium-sized, yellow or orange-coloured butterflies. The head is retracted; the eyes are naked and very little prominent, the palpi moderately long and laterally compressed, with large basal joint and small pointed terminal joint. The antennae are delicate, with gradually thickened, more or less distinct club. The subcostal is four-branched, with two branches before the end of the cell, the upper radial is partly coincident with the subcostal, consequently the upper discocellular is wanting. The hindwing is rounded or bears a short tail. On the position of the upper radial of the hindwing Butler has based the genera *Sphaenogona* (with *ectriva Dbl.* as type) and *Pyrisitia* (with *proterpia F.* as type). The origin of this vein is however rather variable; it either arises from the cell or at the origin of the subcostal or it has a common stalk with the latter. But as all sorts of transitions occur between these positions, the position of the upper radial is of no use as a generic character. — The larvae are slender, with short, soft hairs and mostly green. The pupae are somewhat curved, weakly compressed laterally, keeled on the dorsum, without lateral spines and narrowed to a point anteriorly. — The species of *Terias* prefer open situations with low shrubs and moist places, on which they often appear in large numbers, sometimes they congregate in great crowds, which often traverse long distances, even over the sea. They probably occur without exception in at least two generations, which are sometimes very different superficially, but the identity of the seasonal forms has only been proved in very few exotic species. Doubtless they have likewise developed local forms, but concerning this also very little is known with certainty. — A large number of *Terias*-species have been erected which very probably might be united with those dealt with below. In many cases mere individuals, and often also scarcely tenable local forms have been described as separate species. We cannot here go into the classification of all these unimportant forms, that would rather be a task for a monographic work on the genus. For the large African Region Chr. Aurivillius only accepts eight species (including two doubtful ones). As in the following pages 43 species in 86 forms are dealt with, no principal form at any rate will be left unnoticed.

T. gundlachia *Poey* (24a), from Cuba, Mexico, Texas and Arizona, has the forewing rather sharply *gundlachia.*
pointed and the hindwing prolonged into a tail. Upper surface orange-yellow with sharp, broad costal margin
and narrower and less sharp distal margin on the forewing. Under surface paler orange-yellow, on the
hindwing with brownish spots and reddish yellow dusting.

T. longicauda *Bates* (24a), from California, has the hindwing more pointed. The upper surface is *longicauda.*
lighter orange-yellow and the black margin of the forewing is essentially different in form from that of
gundlachia. The ground-colour of the under surface is somewhat lighter, but the marking does not differ
from that of *gundlachia.*

T. proterpia *F.* (24a), from the Antilles and the north of South America (Mexico to Venezuela), *proterpia.*
has the hindwing weakly angled and the forewing less pointed than in the preceding species. Upper surface
somewhat darker orange-yellow than *gundlachia,* in the ♀ more yellowish and the black apical markings
somewhat broader. Under surface of the forewing light orange-yellow, of the hindwing yellow with small
and indistinct macular marking.

T. nicippe *Cr.* (24a) occurs from New England to the northern part of Brazil and on the Antilles. *nicippe.*
Ground-colour of the upper surface quite similar to that of *proterpia*, but *nicippe* is distinguished by the
broad dark margins. The ♀ has paler ground-colour, sometimes yellow specimens occur: ab. **flava** *Holl.*; *flava.*
the under surface is yellow, slightly sprinkled with brownish, on the hindwing with larger red-brown spots.
Little is known of the first stages; the larva lives on Cassia and other Leguminosae.

T. mexicana *Bdv.* (= boisduvaliana *Fldr.*) (24a), from Mexico, Arizona and Texas, is white above, *mexicana.*
sulphur-yellow on the anterior part of the hindwing, and has very broad, deeply sinuate black margins. The
underside of the forewing is white with yellow margin, that of the hindwing sulphur-yellow with brownish
markings in the centre and at the costal margin. — In **bogotana** *Fldr.*, from Colombia, the yellow colouring *bogotana.*
on the anterior part of the hindwing is wanting.

T. gratiosa *Dbl. & Hew.* (24b), from Venezuela (known to me from Honduras), has the upper surface *gratiosa.*
of the forewing sulphur-yellow, the hindwing white, and at the costal angle a large light orange-yellow spot
and broad black-brown margins. The under surface is uniformly yellow with a small black spot at the discocellular
and slight, indistinct brownish markings at the distal margin. — **ingrata** *Fldr.* (= gratiosa *Reak.*), *ingrata.*
from Mexico and Central America, has yellow upperside of the hindwing and still broader dark margins.

T. arbela *Hbn.* (24b), from South Brazil, is above dark sulphur-yellow with rather broad black *arbela.* 417
margin on the forewing and narrower margin on the hindwing; the latter varies somewhat, and is entirely
wanting in the ♀, which has also paler ground-colour. Under surface yellow with more or less developed
red-brown marginal and central markings. — **gaugamela** *Fldr.*, from Colombia and Mexico, has deeper *gaugamela.*
yellow ground-colour, broader and darker distal margin to the forewing and beneath more, but smaller red-brown
spots. — **boliviensis** *Stgr. i. l.*, from Bolivia, has a large light orange-yellow spot at the apex of the *boliviensis.*
hindwing and broader dentate distal margin of the latter; the ♀ is paler and has more markings. — **fabiola** *fabiola.*
Fldr., from Venezuela, has narrow black margins and the hindwing above is light orange-yellow and less
pointed. — **chloë** *Fldr.*, from Colombia, has broader black margin to the forewing, the hindwing sharply *chloë.* 421
pointed but less suffused with orange-yellow. — **damaris** *Fldr.* (= mexicana *Bdv.*, damarina *Stgr.*), from *damaris.*
Mexico and Arizona, has deep yellow forewing and light orange-yellow hindwing, with sharply defined black
distal margin on the hindwing. Under surface of the hindwing straw-yellow with large and small brownish
spots. — **pomponia** *Hopff.*, from Peru, is large, brilliant yellow, with strongly dentate black distal margin *pomponia.*
on the forewing and very narrow distal margin on the hindwing. — **salome** *Fldr.*, from Ecuador, is very *salome.*
similar to *pomponia*, but smaller, and with the hindwing more strongly suffused with orange-yellow. — **limoneus** *limoneus.*
Fldr., from Venezuela, is differentiated by longer wings, more acutely angled hindwing, lighter colour
on the upperside, broader, more deeply incised distal margin of the forewing and narrower, shorter bordering
of the hindwing. — **theodes** *Fldr.*, from Venezuela, is probably only the ♀ of *constantia.* — Also **theona** *theodes.* 426
Fldr., described from a ♀, appears to be only a somewhat aberrant female specimen. *theona.* 427

T. ectriva *Btlr.* Above very similar to *salome*, but the wings longer; forewing with broader dark *ectriva.*
brown distal margin, its irregularities less pronounced, angle of the hindwing less produced. Under surface
similar to that of *constantia.* Ecuador (Archidona). — Is the type of Butler's genus *Sphaenogona.* Only
known to me from the description.

T. sybaris *Hopff.*, from Peru (Chanchamayo), is very large, in the female sulphur-yellow, with broad *sybaris.*
black distal margin on the forewing, which has proximally four excisions. Hindwing angled, at the costal
margin whitish, at the apex spotted with black. Forewing beneath with a black stripe at the costal margin,
apex reddish. Hindwing marbled with red-brown, at the apex a large red-brown patch of scales and extending
from the cell a reddish stripe.

T. xanthochlora *Koll.* (24b), from Colombia and Chiriqui, has the hindwing only feebly angled. *xanthochlora.*
Upper surface sulphur-yellow with black-brown distal margin on the forewing, on the hindwing in many

cases a black distal-marginal line. ♀ much paler. Under surface uniformly yellow with slight brownish
constantia. markings on the hindwing. — **constantia** *Fldr.*, from Venezuela, is paler yellow in both sexes and has
somewhat reduced black distal margin to the forewing. The under surface of the hindwing has larger and
more reddish spots and the apex of the forewing margined with dark rose-red.

graduata. **T. graduata** *Btlr.* Forewing above saffron-yellow, base blackish, distal margin rather broadly and irregularly black, more than in *constantia,* but the irregularities less pronounced; hindwing on the abdominal half white, apical half saffron-yellow, at the apex gold-yellow; distal margin with distinct black border. Peru. — Only known to me from the description.

westwoodi. **T. westwoodi** *Bdv.* (24 b), from Mexico, Costa Rica, Texas and Arizona, is above lemon-yellow, with
orange-yellow tinge at the distal margin of the hindwing, or else entirely orange-yellow. The dark brown,
dentate margin of the forewing is moderately broad, the border of the hindwing very narrow or only in-
dicated. The under surface is yellow with slight orange-yellow tinge at the distal margin and two black
dots at the discocellular of the hindwing; sometimes the hindwing shows slight, indistinct orange-yellow
34 *citrina.* markings. — **citrina** *Poey*, from Cuba, is a small form with strongly orange-yellow colour at the distal
margin of the hindwing.

reticulata. **T. reticulata** *Btlr.* (24 b), from Peru, is a conspicuous species, one of the largest of the genus. The
upper surface is canary-yellow with black-brown apex to the forewing and small black dots at the distal
margin of the hindwing at the extremities of the veins. The under surface of the forewing is somewhat
paler than the upper, at the costal and distal margins somewhat darker, and with a black spot on the
discocellular. The hindwing has dark yellow ground-colour and thick red-brown reticulate marking, also
6 *marmorata.* some large spots of the same colour. — **marmorata** *Pouj.*, from Ecuador, has beneath less distinct reti-
culate markings.

437 *doris.* **T. doris** *Stgr. i. l.* (24 b), from Bolivia, is perhaps only a gigantic form of the following species. It is vivid yellow above with broad black-brown apical markings. The under surface is likewise vivid yellow, with red apical margin on the forewing and some large red-brown spots on the hindwing.

438 *deva.* **T. deva** *Dbl.* (24 c), from South Brazil, Uruguay and Argentina, is above paler yellow than the
preceding species and has narrower apical marking. The less vivid yellow upper surface has on the hind-
439 *chilensis.* wing much more red-brown macular marking, — **chilensis** *Blanch.*, from Chile, is smaller than *deva* and the
apical spot is straight on the proximal side. It flies in two broods: in November and again February to
440 *hahneli.* April. The larva lives on Cassia. — **hahneli** *Stgr.*, from the Upper Amazon, is somewhat larger than *deva*
and the black marginal marking of the forewing extends almost to the inner angle.

441 *leuce.* **T. leuce** *Bdv.* (24 c), from South Brazil and Uruguay, differs from *deva* by the narrower but longer apical and distal-marginal marking of the forewing and the fuller yellow ground-colour. The under surface has no red-brown markings on the hindwing, but sometimes slight blackish ones.

442 *dina.* **T. dina** *Bdv.* Upper surface beautiful chrome-yellow, orange at the margin of the hindwing. The
forewing has a straight black distal margin, which extends to the inner angle and the costal margin. The
hindwing has the black distal margin before the fringes more than usually narrow. Under surface of the
forewing of a beautiful yellow with a small black median spot, under surface of the hindwing uniformly yellow
with a blackish dot near the base, two small blackish median spots, then an oblique row of irregular brownish
443 *athalia.* spots of scales. ♀ somewhat larger, with broader margin. Cuba, common. — **athalia** *Fldr.*, from Colombia,
is larger, costal margin of the hindwing more convex.

44 *calceolaria.* **T. calceolaria** *Btlr. & Druce.* ♂ above deeper yellow than *dina,* black distal margin almost obsolete, in the ♀ the black apical area almost as in *deva,* triangular, hindwing with a golden yellow apical spot. Honduras.

5 *hecabeoides.* **T. hecabeoides** *Mén.* (24 c), from Haiti, is so like the extraordinarily variable Indian *hecabe L.* that according to Ménétrie's figure scarcely any distinguishing characters can be found. Upper surface yellow with broad, deeply sinuate distal margin of the forewing and narrow black margin of the hindwing. Under surface yellow with blackish markings.

446 *aesiope.* **T. aesiope** *Mén.* (24) has the forewing marked quite similarly to that of the preceding species, but the hindwing instead of the black distal margin has only black dots at the extremities of the veins. The yellow under surface shows irregular red-brown spots. — Haiti.

T. jaegeri *Mén.* (24 c), from Haiti, is very similar to the Indian and Japanese *laeta Bdv.* Upper
447 *jaegeri.* surface yellow with broad black apical and distal-marginal border, sharply cut off at the first median, under
surface grey with darker markings, proximal part of the forewing yellow.

48 *thymetus.* **T. thymetus** *F.* (= perimede *Prittw.*) (24 c, d), from South Brazil (also recorded from Haiti), is above very similar to *leuce,* only somewhat lighter yellow, and has at the distal margin of the hindwing brownish spots, but is sharply distinguished by the style of marking of the underside. This is yellow with slight blackish markings in the middle of the hindwing and a large brownish spot at the apex of the forewing and at the distal margin of the hindwing.

T. stygma *Bdv.* (24 d). Size and shape of *brigitta*. Upper surface lemon-yellow, the forewing with *stygma.* 449
a broad triangular black spot, which is somewhat produced at the costal margin and reaches to the inner
angle. Under surface of the forewing yellow, with the band as above, but light rust-brown and slightly
reddish. Under surface of the hindwing ochre-yellow, with two brown dots at the anterior margin of the
cell, followed by a row of brown, interrupted zigzag markings, a large rust-brown spot at the outer angle
as in *lisa*, but larger. Peru. — **stygmula** *Bdv.*, from Cuba, is very similar, but has smaller spots on the *stygmula.* 450
underside. — **nisella** *Fldr.*, from South Brazil (Rio), is based on a single female specimen whose principal *nisella.* 451
difference appears to be the sulphur-yellow colouring of the upper surface. Only known to me from the
description.

452
T. neda *Godt.* (24 d), from Guiana, Venezuela and Nicaragua, is vivid lemon-yellow with black-brown *neda.*
apical area to the forewing; at the distal margin of the hindwing are placed black dots. Under surface
yellow with very slight blackish markings on the hindwing. — **tenella** *Bdv.*, from Brazil (Bahia, Santa *tenella.* 453
Catharina, São Paulo), is above lighter yellow and has continuous narrow black distal margin on the hindwing.
Also the underside is lighter yellow. — **circumcincta** *Bates*, from the Amazons, **venustula** *Stgr.*, *circumcincta.* 4
from Chiriqui, and **nelphe** *Fldr.*, from Mexico, as well as several other forms, differ so little that reliable *venustula.* 45
characteristics cannot be adduced. *nelphe.* 45

T. nise *Cr.* (24 d), from Surinam and Dominica, is also very similar to *neda*, but has narrower black *nise.* 457
distal margin on both wings and extraordinarily light hindwing. The under surface is lighter yellow, the
markings not different.

T. venusta *Bdv.* Similar to *nise*, but smaller, the margin of the forewing proximally less dentate, *venusta.* 458
border of the hindwing reduced to some black marginal dots. Under surface light yellowish on both wings
and in both sexes, in the middle of the hindwing one or two small blackish dots as in *nise* and *tenella*, and
a row of distinct, oblique brownish spots. Jamaica, Colombia.

T. musa *F.* (= gentilis *Bdv.*). The same size as *venusta*, upper surface white, forewing with a *musa.* 459
broad black marginal band, slightly sinuate proximally, base dusted with grey. Hindwing with beautiful
lemon-yellow margin, separated from the fringes, the latter white with small black spots. Under surface
whitish, slightly yellow distally, base of the forewing lemon-yellow, in the middle of the hindwing two very
small black dots. South America.

T. limbia *Fldr.* (24 d), from Venezuela, has vivid canary-yellow forewing and almost white hindwing, *limbia.* 460
somewhat more strongly sulphur-yellow at the distal margin. The black-brown distal border of the forewing
is rather broad, proximally dentate, the black distal border of the hindwing narrow. The under surface
of the forewing is yellow, without markings, the under surface of the hindwing very light yellow, at the
margins somewhat deeper yellow, with two black dots on the discocellulars. The ♀ has the upperside pale
sulphur-yellow, no dark distal margin to the hindwing, the underside yellower, with blackish macular marking
on the hindwing.

T. lisa *Bdv. & Lec.* (= smilax *Godt.*) (24 d) occurs from New England to Honduras and has also been *lisa.* 461
found on the Antilles and Bermudas. The upper surface is vivid yellow with rather broad black-brown
margins and a black dot at the discocellular of the forewing. The under surface is somewhat lighter yellow
with reddish distal margin, a large reddish spot at the apex of the hindwing, two small black dots on the
discocellulars of the hindwing, a similar one on those of the forewing and indistinct blackish spots on the
hindwing. The ♀ is paler yellow and has broader dark margins, which on the posterior part of the hindwing
are broken up into spots, the under surface is darker yellow and somewhat more marked than in
the ♂. Although this species is very common in places (cnf. the note on migration in the Introduction) the
earlier stages are still very insufficiently known. Larva green with two whitish stripes at each side, head
yellowish. Pupa dark green, slender, breast prominent. The larva lives on Cassia and clover. — **euterpe** *euterpe.* 4
Mén., from Nicaragua, has broader black distal margin on both wings.

T. delia *Cr.* (= demoditas *Hbn.*, daira *Godt.*) (24 d), from the Gulf States of North America, is above *delia.* 463
yellow with broad black apical marking and a broad black inner-marginal stripe on the forewing, as well
as a large black spot at the apex of the hindwing. The under surface is sand-brown with the exception
of the yellow proximal part of the forewing, the hindwing has slight dark macular markings. — **lydia** *Fldr.*, *lydia.* 464
from Venezuala, has shorter, broader wings, the apex of the forewing more obtuse and the distal margin
less arched, broader hindmargin, proximally more deeply convex, and considerably narrower proximal band
on the forewing, the distal margin of the hindwing almost twice as broad.

T. jucunda *Bdv. & Lec.* (= ebriola *Poey*, albina *Poey*) (24 e), from the Gulf States of North America, *jucunda.* 4
differs from *delia* in the longer marginal band of the hindwing and the lighter, grey to white under surface,
almost without markings. — **lemnia** *Fldr.*, from Bahia, is distinguished not only by the broader border of *lemnia.* 466
the forewing, the larger apical spot of the hindwing which is joined to the other marginal spots, and the
quite different under surface, which is glossy white, sparsely dusted with red-brown, but also in the greater
length of both wings.

7 *persistens.* **T. persistens** *Btlr. & Druce.* Allied to *delia* and *eugenia,* upper surface yellow, costal margin and base broadly ash-grey, apex and distal margin broadly black-brown, a black-brown inner-marginal band distally bordered with gold-yellow; hindwing with black-brown apical spot, under surface as in *delia.* Honduras.

468 *hyona.* **T. hyona** *Mén.* (24 e), from San Domingo, is beautiful orange-yellow in the male above with black margin, which is moderately broad on the forewing, narrow and sharply defined proximally on the hindwing. The ♀ has much paler upper surface. Beneath both sexes are almost alike; forewing in the middle orange-yellow, at the distal margin and in the basal part yellow, with a subapical row of small black spots, fringes reddish; hindwing yellow with some blackish dots near the base, some small red-brown spots at the apex, to which extends a narrow band of red-brown spots running towards the inner margin, and small, very indistinct red-brown submarginal spots.

469 *pyro.* **T. pyro** *Godt.* Shape and size as *hyona.* Upperside of the forewing vivid orange-yellow, slightly blackish at the base. Forewing with a black margin, proximally indented. Hindwing at the distal margin slightly dusted with blackish. Under surface of the forewing lighter than above, with a black dot in the middle and a dark apical spot. Under surface of the hindwing light yellow, with an orange-yellow central spot, some brownish scales and a very large round rust-brown spot at the apex, and also a row of small black marginal dots. Antilles or South America.

470 *eleathea.* **T. eleathea** *Cr.,* from Surinam, is not essentially different from **plataea** *Fldr.* (24 e), from South
471 *plataea.* Brazil (São Paulo, Santa Catharina, Rio Grande do Sul). The latter has yellow forewing and white hind-
wing, broad margin on the forewing and narrower one on the hindwing, also a black stripe at the inner
margin of the forewing, which is posteriorly edged with orange-yellow. The under surface is rather variable,
whitish to grey, the anterior part of the forewing yellow, mostly only with black dots at the discocellular
of both wings, not seldom with somewhat darker markings. The ♀ has yellow or yellowish ground-colour
on the hindwing above, the black and orange-yellow stripe at the inner margin of the forewing is absent.
The under surface is mostly darker and more abundantly marked. This species also shows a number of
72 *vitellina.* local forms, which have almost all been described as separate species, thus **vitellina** *Fldr.,* from Venezuela
and Honduras, with white-scaled inner-marginal stripe and the under surface entirely without markings; —
73 *eugenia.* **eugenia** *Wall.* (= rhodia *Fldr.*), from Venezuela, Colombia and St. Josef, with very dark yellow forewing
474 *cubana.* and sharp and broader orange-yellow inner-marginal stripe; — **cubana** *H.-Schäff.,* from Cuba, with broad
475 *palmyra.* black distal margin on the hindwing; — **palmyra** *Poey* (= lydia *Fldr.*), from Cuba and the Gulf States, in
476 *phoenicia.* which the black distal margin of the hindwing is reduced to a spot at the apex; — **phoenicia** *Fldr.,* from
Colombia and Ecuador, has orange-yellow inner-marginal stripe reaching to the base and rather broad distal
477 *elathides.* margin on the hindwing; **elathides** *Stgr.,* from Venezuela, is larger, and has no orange-yellow inner-marginal
stripe; the ♀ is darker beneath. — All these forms can scarcely be separated from one another. Considerably
478 *sidonia.* different on the other hand are: **sidonia** *Fldr.,* from Mexico, in which the black inner-marginal stripe is
merged together with the black distal margin and the hindwing has very broad black distal margin; —
479 *ella.* **ella** *form. nov.,* from Ecuador, has no orange-yellow inner-marginal stripe, also the black inner-marginal
stripe is merged together with the black distal margin and the hindwing has a broad black distal margin
480 *tegea.* which is sharply defined proximally. — **tegea** *Fldr.,* from Colombia, is larger than *vitellina,* with broader
wings, and may be recognised by the greater width of the inner-marginal band of the forewing and the
481 *medutina.* distal-marginal one of the hindwing. — **medutina** *Fldr.,* from Venezuela, has narrower wings, the forewing
is more elongated and the hindwing shorter.

482 *priddyi,* **T. priddyi** *Lathy,* from Haiti, differs from *eleathea* in the yellow upper surface of the hindwing, the shorter dark distal-marginal band of the forewing and the absence of the yellow stripe at the inner margin of the forewing and of the dark distal margin of the hindwing, which is only represented by marginal spots.

483 *mycale.* **T. mycale** *Fldr.* (24 e), from Brazil (Bahia, São Paulo), is very similar to *eleathea.* The dark distal margin of the forewing is broader and confluent with the hindmarginal stripe, also the distal margin of the hindwing is much broader. The under surface of the forewing is less yellow, otherwise not different.

484 *smilacina.* **T. smilacina** *Fldr.,* from Colombia, was described from a ♀. Upperside pale sulphur-yellow with black-brown distal margin, hindwing with black marginal dots. Underside glossy white, at the discocellular a crescent-shaped spot, a subapical red-brown macular band, a black dot at the costal margin near the apex of the forewing; hindwing with spots at the discocellular, a subapical macular band and black marginal dots.

485 *albula.* **T. albula** *Cr.,* from Surinam, probably scarcely differs essentially from **marginella** *Fldr.* (24 e), from
486 *marginella.* Venezuela. This is white above and has moderately broad black margin on both wings. The under sur-
487 *sinoë.* face is white, entirely without markings. — **sinoë** *Godt.* (= cassiae *Sepp,* nise *Hbn.*), from South Brazil, has
more or less broad distal margin on the forewing and entirely white wings. The under surface is white
or sometimes yellowish. The ♀ has narrower and shorter distal margin on the forewing and some dark
markings on the hindwing beneath.

488 *deflorata.* **T. deflorata** *Koll.,* from Colombia, is similar to *albula.* Upper surface white, forewing with a yellowish tinge, apex black, irregularly defined proximally, at the distal margin of the hindwing three to four blackish

streaks. Under surface of the forewing at the base lemon-yellow, at the apex slightly dusted with red-brownish. The hindwing has a scarcely perceptible yellow tinge and before the distal margin a stripe composed of brownish atoms, which, however, is not at all conspicuous. Only known to me from the description.

T. agave *Cr.* (= jodutta *Hbn.*, phiale *Godt.*, mana *Bdv.*) (24 f), from Surinam, has the forewing much rounded and very narrow. Upper surface white with black markings at the apex and blackish dusting at the base of the forewing. Under surface white on the proximal part of both wings, otherwise yellow, with a black dot at the discocellular of the hindwing and slight blackish markings on the hindwing. *agave.* 489

T. messalina *F.* Shape and size as *rahel.* Upper surface white, distal margin of the forewing and a marginal spot on the hindwing black. Under surface yellow, with a brown spot at the apex of the forewing, a marginal spot and black scales on the hindwing. — Jamaica. *messalina* 490

T. gnathene *Bdv.* Shape and size of *albula.* Upper surface white with a very slight greenish tinge, black distal margin, which is rather strongly widened at the apex and terminates in the anal angle of the hindwing. Under surface of the forewing white, at the base and apex lemon-yellow, a longitudinal row of reddish spots at the inner margin, a blackish spot at the apex, a violet subapical spot. Under surface of the hindwing yellowish, with a small, light rust-brown lunular spot at the margin of the cell, a deep rust-brown and a deep red-brown spot (less sharply defined) at its posterior margin. — Yucatan and Cuba. *gnathene.* 491

T. phiale *Cr.* (24 f), from the eastern part of tropical South America, is white with black margin to the forewing and narrow black distal margin to the hindwing, before which is placed a light yellow band. The under surface is light yellow and almost without markings except for two black dots at the discocellular of the hindwing. — **columbia** *Fldr.* (= phialina *Stgr. i. l.*), from Colombia and Bolivia, has somewhat narrower distal margin on the forewing, proximally almost rectilinear, and the black distal margin of the hindwing less developed. — Whether **paula** *form. nov.*, from São Paulo, is a separate species or a form (perhaps a seasonal form) of *phiale,* I cannot say from the two male specimens before me. The black distal margin of the forewing only reaches to the first median vein, that of the hindwing is broken up into small dots and the under surface of the hindwing is dark yellow. Has two conspicuous black dots at the discocellular and copious grey-brown macular marking. The apex of the forewing is likewise dark yellow. *phiale.* 492 *columbia.* 493 *paula.* 494

20. Genus: **Catopsilia** *Hbn.*

This genus has about the same range as *Terias.* In the mountains no species appears to ascend beyond 2000 m. The species which belong here are mostly of considerable size and fine, sometimes conspicuous, colouring. The powerfully built body and the shape of the wings make the insects particularly adapted for swift flight. They use this capacity for distant migrations, in which extraordinarily large crowds sometimes participate, their passage often lasting for hours. Apart from this the common species occur in large swarms, enliven the damp banks of the rivers and contribute materially to the character of the fauna of their district. The *Catopsilia*-♂♂ are not only immoderate water-drinkers, but are also attracted by human sweat and urine, as Dr. Fr. Ohaus proved during his travels in South America. He also observed swarms of *Catopsilia* on the stranded bodies of fishes. The ♀♀ mostly remain in the woods and visit flowers, on which of course ♂♂ are also to be met with when they seek the company of the ♀♀. — The rather large head has prominent naked eyes, the palpi only project a little beyond the head, the antennae are short and moderately soft, without distinct club, with truncate or indented tip. Subcostal four-branched, the first branch beyond half way between the base and the discocellular, the second branch arising shortly before the discocellular, the fourth branch running into the distal margin, the upper radial coincident with the subcostal to $^{1}/_{4}$, the middle discocellular shorter than the proximally curved lower one. Hindwing rounded, in some species prolonged into a tail at the submedian. The precostal is a mere knob. The larvae have the usual Pierid shape and granulated skin, are grey or green and have a light lateral longitudinal stripe; they live on Cassia. The pupae are rather variously shaped; as far as they are known they will be described under the respective species. — Contrary to the usual custom I refer (with A. G. Butler) *menippe* to the following genus, from which it only differs in neuration by an unimportant deviation, whilst in its other characters *menippe* agrees with *Gonepteryx.* — This genus contains some species which in beauty must be considered as the climax of development among the Pierids.

C. eubule *L.* (= marcellina *Cr.*) (25 a) occurs from New England to Argentina, also on the Antilles. Upper surface in the ♂ lemon-yellow, lighter at the distal margins, and with black marginal line. Beneath somewhat paler yellow with a silvery "eight", edged with red-brown, on each wing at the discocellular, a black marginal line and irregular dark markings on both wings. The ♀ is somewhat paler yellow, has a row of marginal spots on both wings, a large black median spot on the forewing and sometimes more or less dark brown marking. The under surface is deeper yellow and more marked than in the ♂. — **sennae** *L.* (= yamana *Reak.*) is beneath deeper yellow and more abundantly marked, the ♀ being pale orange-yellow *eubule.* 495 *sennae.* 496

497 *drya.* above. — **drya** *F.* (= amphitrite *Blanch.*), from Peru, Chile, Cuba and Haiti, is a small, weakly marked
form. — *eubule* flies in June and again from September to October, *drya* in November to December and
from March to April. The ♂ has as scent-organ on the upper surface of the hindwing near the costal
margin a spot of scales, over which the soft, widened inner margin of the forewing is stretched out to stir
up the scent, scattering it with a pencil (retractile into a fold in the skin).

498 *cipris.* **C. cipris** *F.* (= bracteolata *Btlr.*) (25~~c~~b), from Brazil and Peru, has the hindwing prolonged into a
tail in both sexes. The ♂ is very light orange-yellow, the broad distal margin of the forewing, which is
thickly covered with chalky scent-scales, and the considerably narrower distal margin of the hindwing
lighter; the upper surface has no markings except small marginal spots on the forewing. The under surface
is darker yellow with a silvery eight on both wings and more or less dark markings. The underside is
499 very variable. The ♀ is lemon-yellow and has a large black median spot on the forewing, the under surface
neocypris. is more greenish than in the ♂. — **neocypris** *Hbn.*, from the same localities, is in both sexes suffused with
500 *irrigata.* orange-yellow above at the margins and is also darker beneath. Probably a seasonal form. — **irrigata** *Btlr.*,
501 *virgo.* from Brazil, is an aberrant female form, more strongly marked above and beneath. — **virgo** *Btlr.*, from
Central America, is more strongly marked, has black marginal spots in both sexes, also in the ♂ a large
black median spot on the forewing, and the ♀ is white above with narrow red distal margin.

502 *rurina.* **C. rurina** *Fldr.* (25 b), from Venezuela, Colombia, Ecuador and Peru, occurs apparently only at
elevations of 1000 to 2000 m. The forewing in the ♂ is orange-yellow except for the distal margin of
lemon-yellow scent-scales which occupies almost half the wing, the hindwing lemon-yellow with broad, light
orange-yellow distal margin, at the distal margin of both wings are placed small black-brown spots. The
under surface is yellow with a silvery double spot at the discocellular of each wing and more or less black-brown
markings. The ♀ is very variable, from bright yellow to almost white ground-colour, stronger distal-marginal
markings and a large black-brown median spot on the forewing and also large red distal-marginal
spots or broad red distal margin on the hindwing. The under surface has paler ground-colour and more
3 *intermedia.* red-brown markings, often united into large spots. — **intermedia** *Btlr.* is the Central American form; the
orange-yellow colour of the forewing of the ♂ is almost entirely absent and the ♀ has whitish ground-colour.

504 *philea.* **C. philea** *L.* (= argante *Hbn.*, corday *Hbn.*, aricye *Cr.*, melanippe *Cr.*, lollia et aricia *Godt.*) (25 c),
distributed from Texas to South Brazil, very common in some places, also observed in Illinois as a migrant,
is one of the most beautiful species of this genus. The upper surface in the ♂ is a fine canary-yellow with
a large orange-yellow median spot on the forewing and broad orange-yellow distal margin on the hindwing.
The under surface is pale yellow with silvery median double spot and brownish markings. The secondary
male characters consist of a spot of scent-scales on the upperside of the hindwing, to which corresponds a
pencil found on the underside of the inner margin of the forewing, and a moderately broad band of scent-scales
on the upperside of both wings, only slightly contrasting in colour. The ♀ is less brilliant yellow,
the large orange-yellow median spot of the forewing is absent, but it has a large black-brown median spot
5 and marginal, submarginal and costal macular markings on the forewing, as well as dark marginal spots on
thalestris. the hindwing. The ground-colour of the under surface is redder than in the ♂. — **thalestris** *Ill.* (= huebneri
Fruhst.), from the Antilles, also reported from Chile (?), has in the ♂ a larger orange-yellow median
spot, also a large black-brown spot at the discocellular ef the forewing. The under surface is much more
marked and shows at the distal margin of the hindwing large red-brown spots. The ♀ has much more red
above and beneath and is much more strongly marked, especially on the under surface, which shows on
the hindwing a broad red-brown distal margin and a large median spot of the same colour. — Pupa regularly
canoe-shaped, dorsum strongly incurved, head prolonged into a long point.

506 *avellaneda.* **C. avellaneda** *H.-Sch.* (25 d), from Cuba, is unquestionably the most beautiful species of the genus.
In the ♂ the ground-colour of the upper surface of the forewing is canary-yellow, a broad margin ochre-yellow,
the distal margin narrowly red, the central and posterior part of the wing is gorgeous carmine, at the
discocellular is placed a red spot with black centre. The hindwing is less fiery carmine, in the cell yellowish
red, the long spot of scent-scales placed at the subcostal is white, the distal margin rather broadly
ochre-yellow. The under surface is red-yellow with white double spot in the centre of each wing and continuous
black-brown submarginal spots. The ♀ has the upperside of the forewing canary-yellow with red
distal margin and marginal and submarginal red-brown spots as well as a large red-brown spot at the
discocellular, the basal part of the wing is sprinkled with red. The hindwing is yellowish red, at the costal
margin light pink, with marginal and submarginal red-brown spots. The under surface has dark yellow
ground-colour, the broad distal-marginal band is blue-red with red scales, the margin itself narrowly yellow;
the broad blue-red distal margin is proximally bordered by black crescent-shaped spots and at these as
well as at the base there is dark red colouring, at the discocellular of each wing are placed white, black-edged
507 *solstitia.* spots (five on the forewing, two on the hindwing). — **solstitia** *Btlr.* (25 d), said to be from Chile, but
probably an aberrant form of *avellaneda* and therefore also indigenous to Cuba, is differentiated from the
latter by a narrower and proximally rectilinear ochre-yellow distal margin on the upper surface and by the

carmine spots of the forewing being reduced proximally. On the supposition that the locality "Chile" is correct, Butler regards *solstitia* as a separate species on account of a few small differences in the hairs of the body.

C. editha *Btlr.* (26 a), from Haiti, is in the ♂ lemon-yellow without markings, the under surface *editha.* 508
is dark yellow with two white spots, surrounded with black-brown, at the discocellular of the hindwing and
also small black-brown macular markings. The ♀ has the upper surface reddish yellow, especially on the
hindwing, with a large black median spot and marginal and submarginal black-brown spots on the forewing,
and also small black-brown marginal spots on the hindwing, the under surface is scarcely different from that
of the ♂. — **fornax** *Btlr.*, from Chile (?), I regard as a ♀-form of *editha.* The upper surface has much more *fornax.* 509
red, particularly a broad dark red marginal band on the hindwing, and the under surface, the proximal half
of which is yellow, has many more red markings.

C. argante *F.* (= larra *F.*, cnidia *Godt.*) (25 a) is distributed from the North American Gulf States *argante.* 510
to Paraguay and very common. The ♂ is above pale orange-yellow and without markings except the black
marginal spots. The rather narrow margin of scent-scales is little conspicuous, this species like several
others has a further scent-organ, consisting of a spot of scales on the upperside of the hindwing, which is
associated with a pencil on the underside of the inner margin of the forewing for scattering the scent. The
under surface is yellow with numerous brownish markings and sometimes white spots at the discocellular.
The ♀ has similar ground-colour on the upperside, but more black marginal markings, also a black median
spot on the forewing. The under surface is more strongly marked with dark. The pupa has extraordinarily
swollen breast, the head is produced into a point, on the thorax is an acutely angled elevation and along
the sides runs a ridge-like protuberance. — **hersilia** *Cr.* is a more strongly marked form. The ♂ has in- *hersilia.* 511
stead of the red marginal spots of the forewing a narrow black marginal band and the ♀ has more and
larger black spots. The under surface is also more marked. — **rorata** *Btlr.*, from Haiti, is a large form. *rorata.* 512
The ♂ has unusually bright yellow marginal band and the ♀ with almost white ground-colour has much
black macular marking as well as red striation on the upper surface. Also the under surface shows in the
♀ red-brown spots united into bands. — **minuscula** *Btlr.*, said to be from Havanna, but which I have from *minuscula.* 513
Rio Grande do Sul, is a dwarf form of *argante,* scarcely half as large. — **agarithe** *Bdv.*, from Texas *agarithe.* 514
(*argante* ♂), Panama, Venezuela, Haiti and Brazil, would have to be regarded as a separate species according
to Butler's figure of the pupa. But Butler is in error; he has figured the pupa of *philea*, as I have
positive proof. The butterfly is similar to *argante* in the ♂, but has a strongly marked light distal margin
of unequal width on the hindwing and the posterior part of the wing is yellow. The under surface shows
besides other markings on the forewing a red-brown macular band running from the apex towards the inner
margin. The ♀ is above reddish yellow, with a large orange-yellow patch at the discocellular of the fore-
wing, in which the black median spot is placed. The under surface is similar to that of the ♂, but more
strongly marked. — **floridensis** *Neumögen i. l.*, from Florida, is in the male entirely without markings above, *floridensis.* 515
the margin little lighter than the proximal part of the wing, beneath on the contrary rather strongly marked,
the band of red-brown spots running from the apex of the forewing towards the inner margin being parti-
cularly striking. The ♀ is above almost as uniform as the ♂, only somewhat lighter orange-yellow colour,
and has no markings at all except slight brownish ones at and near the apex of the forewing and the very
indistinct small dark median spot on this wing.

C. trite *L.* (25 b), from tropical America, has yellow upper surface with black distal margin on the *trite.* 516
forewing, which in the ♀ is somewhat broader. The margin of scent-scales is very narrow and inconspicuous, the scent-apparatus on the proximal part of the wing is as in the preceding species. The under surface is greenish yellow, lighter at the margin, and has besides slight submarginal markings on the hindwing an oblique blackish band, peculiar to this species, on both wings. The ♀ has lighter ground-colour beneath.

C. statira *Cr.* (26 c) occurs very commonly in the whole of South America. The distal half of the *statira.* 517
wing is covered with scent-scales and is strikingly lighter than the lemon-yellow proximal half. The upper-
side has no markings except a narrow black distal margin. The ♀ has broader black distal margin and also
a black median spot on the forewing. The under surface has slight dark markings. — **wallacei** *Fldr.*, from *wallacei.* 518
Rio Negro and Peru, is uniformly yellow above and has the distal half of the wing very light beneath.

C. boisduvalii *Fldr.* (26 c), from Colombia and Central America, is cream-coloured, more strongly *boisduvalii.* 519
yellow on the basal part, with narrow black apical margin. The under surface is light yellow, entirely without markings.

C jada *Btlr.* (26 b), from Guatemala, has in the ♂ the proximal half of the wings ochre-yellow, the *jada.* 520
distal half lemon-yellow, no markings, the under surface is reddish yellow, lighter on the distal half. The ♀
is above yellow with black dentate distal margin and round black median spot as well as a subapical row
of four small ochre-yellow spots. The under surface is bluish white with reddish marginal and medial
markings. — **jaresia** *Btlr.*, from Peru, is only known in the female. Like the *argante*-♀ it is orange-yellow *jaresia.* 521

with black median spot, but has on both wings continuous black marginal markings. The under surface is somewhat more reddish yellow than in *jada*, the markings almost the same.

522 *godartiana.* **C. godartiana** *Swains.* (= orbis *Bdv.*) (26 b), from Haiti and Porto Rico, has half the upper surface
of the forewing white and the other half yellow; the white distal half has a narrow yellow margin. The
proximal part of the hindwing is reddish yellow, shading into greenish distally, a broad margin is white.
The under surface of the forewing is in the anterior part yellowish with dark submarginal markings, in the
posterior part whitish. The proximal part of the hindwing beneath is reddish white, the margins are greenish,
the distal margin broadly so; there are no markings except two white spots at the discocellular and a few
small blackish submarginal markings. The ♀ has dingy reddish yellow upper surface with continuous black
marginal markings, large black median spot and a small hook-shaped submarginal spot on the forewing.
The hindwing has larger disconnected black marginal spots. The under surface is reddish yellow in the
proximal part, in the distal part almost white with reddish marginal markings, blackish submarginal markings,
large reddish median spot on the forewing and two white, brownish-edged median spots on the hindwing. —
523 *neleis.* **neleis** *Bdv.*, from Cuba, Mexico and Guatemala, has the distal part of the upper surface less strikingly
white and there are no markings on the under surface, which is yellowish on the proximal half and whitish
on the distal half. The ♀ is above much lighter, more yellowish and with less black markings, the ground-
524 *butleri.* colour of the under surface lighter. — **butleri** *Scudd.*, from Mexico (Tehuantepec), is apparently only an
aberrant female with light chamois-coloured upper surface and the markings somewhat more brown-black. —
525 *hartonia.* **hartonia** *Btlr.*, from Jamaica, is in the ♂ above very similar to *godartiana*, only the greenish tinge is
wanting; the under surface is quite similar to that of *neleis*, but has somewhat dark markings. The ♀ is
similar to the *neleis*-♀, but has no continuous marginal markings on the forewing above. On the under surface
the forewing is more yellowish, the hindwing more reddish, also less marked.

526 *orbis.* **C. orbis** *Poey* (26 a) from Haiti and Cuba, is very peculiarly marked in the ♂ above. The orange-yellow colouring, which is spread over the whole upper surface in the ♀, is only present in the ♂ in a large circular spot near the base. The distal half of the forewing is white, the rest of the wing yellow. The hindwing is yellow, with broad white distal margin. The underside is reddish yellow with a white, reddish bordered median spot on each wing, reddish marginal line and red-brown submarginal markings. The ♀ is entirely orange-yellow above and has black marginal and submarginal spots and also a square black median spot. The under surface is more strongly marked with red-brown than in the ♂. The pupa is comparatively slender, without anything striking in its form, the head-part produced into a short point. Larva on Poinciana pulcherrima, green with yellow venter, all the incisions light greenish yellow. Pupa green, canoe-shaped, extremities pink and veins yellow (Boisduval).

21. Genus: **Gonepteryx** *Leach.*

The few species of this genus would be better united under the generic name of *Amynthia Swains.*, since they not only differ from *Gonepteryx*-species of the Old World by their gigantic size, but also possess structural characters which well separate them from *Gonepteryx*. The fourth subcostal vein does not run into the costal margin, as in true *Gonepteryx*, but into the much more produced apex. According to E. Reuter the American species agree in the structure of the basal joint of the palpi, but differ in this from the true *Gonepteryx*-species. The species which belong here cannot be mistaken on account of their wing-contour, and possess a further common characteristic in that the subcostal of the hindwing appears especially developed on the under surface and is particularly conspicuous by its peculiar colouring. The secondary male characters agree with *Catopsilia*, but are even more developed, the greater part of the wing above being covered with chalky scent-scales, whilst the scent-organ at the costal margin of the hindwing takes the form of a long, broad gland. One species is distributed from Paraguay, the other two have a more restricted range. — Nothing appears to be yet known as to the earlier stages.

527 *menippe.* **G. menippe** *Hbn.* (= leachiana *Godt.*) (26 g) apparently occurs in the whole of tropical
America, not even shunning the higher mountains. It surpasses the most conspicuous Indian Pierid,
Hebomoia glaucippe, both in size and in beauty. The upper surface is light yellow, sometimes somewhat
darker, the apical third of the forewing is gorgeous orange-yellow, at the discocellular is placed a
large, square brown-red spot, before it sometimes also a smaller, but otherwise similar spot. The black-
brown distal margin varies very much in width; in most specimens it is as shown in our figure, not
infrequently it is reduced to marginal spots which are only connected by a marginal line, occasionally
528 *calypso.* it is entirely absent: ab. **calypso** *form. nov.* The hindwing has only rarely blackish marginal spots. The
ground-colour of the under surface is likewise rather variable, from greenish white to yellow, with more
or less sharp, light, somewhat opalescent markings; there are always on both wings an oblong, much
interrupted reddish median spot and a more or less complete row of black submarginal dots; the sub-

costal of the hindwing is conspicuous by its colouring. The ♀ differs in the orange-yellow spot being somewhat lighter and has also more blackish spots at the distal margin of the hindwing. Specimens in which the orange-yellow spot is entirely absent are rare: ab. **thetis** *form. nov.* — FRUHSTORFER has based the subspecies **metioche** on 2 specimens from Colombia; it is said to be characterised by darker, deeper and more uniform yellow ground-colour, longer and narrower wings, larger size, larger, lighter and more divided median spots on the under surface.

thetis. 529
metioche. 530

G. clorinde *Godt.* (= swainsonia *Swains.*, godarti *Perty*, maerula *Hbn.*) (24g) is distributed from Mexico to Paraguay, extremely variable in size, has the upper surface white with a faint greenish tinge, the large median spot is either orange- or sulphur-yellow, on each wing is a small black median spot margined with red-yellow. The under surface is greenish with white striation and an inconspicuous reddish median spot on each wing. The ♀ differs in having the yellow median spot much less developed and the median spots larger and much more broadly surrounded with red-yellow. — **nivifera** *Fruhst.*, from Central America, is said to be distinguished by snow-white upper surface, darker, more orange-yellow median spots and yellowish-marbled under surface.

clorinde. 531
nivifera. 532

G. maerula *F.* (24g) is distributed from Mexico to South Peru, but appears to be wanting in the east of the district. The upper surface is lemon-yellow and has no markings except the black-brown median spot and perhaps a few black marginal dots. The scent-organ on the hindwing is lighter. The under surface is greenish with light striation and a white, reddish-bordered median spot on each wing; the subcostal of the hindwing is distinctly prominent. The ♀♀ are mostly whitish and have a larger orange-yellow median spot on the hindwing. A canary-yellow ♀-form is more rare: ab. **flava** *form. nov.* — To **lacordairei** *Bdv.* (= ecclipsis *Cr.*) belong those specimens which have a plain yellow under surface without striation. — **gueneeana** *Bdv.* is still less different; specimens with distinct black marginal spots should be referred here.

maerula. ✓53
flava. 534
lacordairei. 535
gueneeana. 536

22. Genus: **Kricogonia** *Reak.*

This genus has its area of distribution from southern North America to Venezuela and also occurs on the Antilles. Apart from the much smaller size and the shape of the wings the only difference from *Gonepteryx* is that the long palpi extend far beyond the head. There is no difference in the neuration. The early stages are still unknown.

K. lyside *Godt.* occurs from Texas and California to Venezuela. The upper surface is white, the proximal part of the hindwing suffused with yellowish, the basal part of both wings yellow, the under surface slightly yellow except for the almost white posterior part of the forewing, with no markings, only occasionally a black median spot on the hindwing. The ♀ has less yellow at the base and the apex of the forewing is darker. — **terissa** *Luc.* (= lyside *Hbn.*) is an aberration which is distinguished by a small black stripe at the costal margin of the hindwing. — **xanthophila** *form. nov.* (26d), from Guatemala, is an entirely yellow form (only in the female?). The underside of the hindwing is light, contrasting with the forewing. — **castalia** *F.* is the form from Jamaica. It has at the base only traces of yellow, and the under surface, especially of the forewing, is even less yellow.

lyside. 537
terissa. 538
xanthophila 539
castalia. 540

K. fantasia *Btlr.* (26d), from Nicaragua, has in the female greenish white upper surface, at the costal margin of the forewing a dark sulphur-yellow basal stripe and light brown apical and distal-marginal markings, the hindwing is light sulphur-yellow. The underside of the forewing is glossy sulphur-yellow on the basal half, the rest of the wing is light sulphur-yellow, hindwing as above, in the basal half darker sulphur-yellow. Is probably only another aberration of *lyside;* a quite similar specimen from Cuba is before me.

fantasia. 541

23. Genus: **Teriocolias** *Röb.*

It is not practicable to allow *atinas Hew.* to remain in the genus *Terias* as it is much less closely allied to this than to *Colias.* It differs from the latter in that the fourth subcostal vein does not run into the distal margin but direct into the apex and that the lower discocellular of the forewing is wanting; the lower radial arises direct from the subcostal. A fourth peculiarity of this genus is the clothing of the basal half of the antennae with long, hair-like, moderately appressed scales, so that the antenna when only a little magnified gives the impression of a Heterocerous antenna. Similar structures occur among the Erycinids, and also in the American *Gonepteryx* and *Catopsilia,* but not, so far as I can ascertain, in *Terias.* Biological reasons are also against its near relationship to *Terias:* that is to say, *atinas* flies in the high mountains, where species of *Terias* never occur.

T. atinas *Hew.* (26d), from Bolivia, is above deep sulphur-yellow with a small black spot at the discocellulars of the forewing, the basal part of both wings is black, at the distal and costal margin of the forewing near the apex are placed small dark spots or dots. The under surface of the forewing is sulphur-yellow with reddish distal margin and small dark marginal spots as well as two black dots at the discocellulars, the under

atinas. 542

surface of the hindwing is yellow, densely dusted with brownish and with red-brown spots at the costal margin
543 *pacis.* and in the middle and two blackish dots at the discocellulars. The ♀ has lighter ground-colour. — **pacis** *Stgr. i. l.* (26d), from Peru (3300 m), is above somewhat deeper yellow, beneath the reddish border of the forewing
544 *plesseni.* is broader and the hindwing is more deeply dusted with red-brown. — **plesseni** *subsp. nov.*, from Chanchamayo (Peru), was captured by Baron G. von Plessen on March 26 1906 on the way from Aroya to La Merced on the eastern slopes of the Andes, where the species was flying together with *Colias euxanthe* over lupine-fields. It is above and beneath sulphur-yellow, has beneath no differently coloured border to the forewing and shows only a little blackish dusting on the sulphur-yellow ground-colour apart from the blackish brown spots of the hindwing.

24. Genus: **Colias** *F.*

About three-fourths as many species must be referred to the American Region as to the Palaearctic if the conception of species is not applied too critically. But on a more thorough examination scarcely more than twenty American species can be established, hence about half the number which the Palaearctic Region produces. Considering the enormous size of the region this suggests an apparent poverty in species in America, which however is explained when we remember that the species of *Colias* are in great part inhabitants of the mountains, and the American Region properly shows only one mountain range, although an enormous one. The splitting up of Central Asia into a number of independent mountain ranges has apparently been very favourable to the formation of *Colias*-species. This advantage is wanting in the American Region. On the other hand it must further be taken into consideration that the most southern part of America possesses a few species, some of them very conspicuous, for which the eastern hemisphere can offer no equivalent owing to the want of corresponding lands.

The genus *Colias* is unmistakeably characterised by its superficial appearance; whether the species comes from the far north or the extreme south it is immediately recognised as a *Colias*. In neuration its special characteristic is the entire absence of the precostal, in which the genus agrees only with the superficially very different *Terias*. The butterflies are mostly of medium size, some species are among the larger Lepidoptera. Antenna rather short, with gradually thickened, but distinct club. Apex of the forewing rounded, forewing with four subcostal veins, of which the first arises far before the discocellular; the upper radial arises from the subcostal, hence the upper discocellular is wanting.

The genus has its principal area of distribution in Central Asia, where most of the species have their habitat. It is almost exclusively confined to districts with a temperate climate. In North America, in the mountains of tropical South America and in the plains of the southern part of South America, as already said, a large number occur, in Africa only two species (local forms of Palaearctic species), but in the Indo-Australian Region, except in the Himalayas and the Nilghiri Hills, no species occurs. A few species extend far towards the north (e. g., *C. boothii* to lat. 75°), and in Tierra del Fuego occurs one of the largest and most beautiful species (*imperialis*). A few species occur in two generations, but most in only one. Sexual dimorphism is well developed in most of the species, also dimorphism in the ♀♀, which often occur in a pale and in a bright yellow or orange-coloured form. Their flight is very quick and long-sustained. The ♂♂ of many species possess as secondary sexual character at the costal margin of the hindwing above a more or less sharply defined small disc of thick chalky scales („Mehlfleck"). — Egg cylindrical, feebly ribbed. Larvae long, of almost equal width throughout, with very short hairs; they hibernate, live mostly on clover and allied plants, the species indigenous to the north mostly on Vaccinium. Pupa with pointed head and raised, very sharp dorsal side of the thorax; like most Pierid pupae they are placed upright, are hooked at the cremaster into a silken pad and are held upright by a long, loose girdle.

45 ✓*palaeno.* **C. palaeno** *L.* (= philomene *Hbn.*, lapponica *Stgr.*, werdandi *H.-Schäff.*) (27a). I have before me a ♂ from Canada, from the collection of Herr Leopold Hartmann of Würzburg (to whon I am indebted for the loan of his North American Pierids). It is above not distinguishable from German specimans (*europome Esp.*), but much more yellow on the under surface; the colouring of the hindwing approximates to that of the ♀♀ of
6 *pelidneides.* *europome.* — At Hudson's Bay and in Alaska occurs **pelidneides** *Stgr.*, which according to Staudinger differs from *palaeno* in that the median spot of the hindwing beneath is not white, but reddish as in *pelidne; pelidne*, however, commonly varies in this, yet this median spot is always much smaller in that species than in *palaeno.* — Larva sea-green, velvety, with fine black dots, at the sides a bright yellow longitudinal stripe margined with black beneath, below which the white, black-edged spiracles are placed, venter and ventral legs dull green, thoracic legs yellowish, head green; on Vaccinium uliginosum. Pupa greenish yellow with strongly convex dorsum. In the Palaearctic Region the butterfly flies from the end of June to the middle of August on marshy ground.

547 *pelidne.* **C. pelidne** *Bdv.* (= anthyale *Stgr.*) (27a), from Labrador and boreal North America, is paler yellow than *palaeno*, and has narrower and less dark distal margin, the under surface is likewise much paler, greenish

on the hindwing, the median spots of the under surface are smaller, as also those of the upper surface, the latter
often absent. The ♀ is above yellowish white with only narrow, proximally diffuse dark margin to the forewing. — *labrado-* 548
labradorensis *Scudder* can scarcely be distinguished. The ♂ has narrower distal margin, which is almost broken *rensis.*
up into spots by small stripes of the ground-colour, and the ♀ has no dark distal margin. ab. **moeschleri** *Gr.-* *moeschleri.* 549
Grsh. is darker yellow, almost orange-yellow. — In Dr. STAUDINGER'S collection there are specimens which might
be treated as hybrids of *pelidne* and *nastes;* upper surface greenish yellow, veins black-brown, the dark margin
sharp. This form may be named **standfussi.** — *pelidne* is not a constant form, but on the other hand does not *standfussi.* 550
vary very much, so that no positive characteristics can be given for **skinneri** *Barnes.* — **chippewa** *Edw.*, from *skinneri.* 551
the Mackenzie River (British North America), appears to be a transition between *pelidne* and *palaeno;* STRECKER *chippewa.* 552
considers it a form of *palaeno;* it is an aberration very difficult to differentiate. The ♀ is more like a ♀ of *palaeno*
than of *pelidne.*

C. philodice *Godt.* (= dorippe *Godt.*, palaeno *Cr.*, europome *Steph.*) (27a) (the Common Sulphur or Puddle *philodice.* 553
Butterfly), is distributed from New England to Florida and westwards to the Rocky Mountains. This species is very
common and often occurs in swarms, enlivening the edges of the roads and clover fields. It only varies a little in
the width of the black margin. White ♀♀ are distinguished as ab. **alba** *Stgr. i. l.* — ab. **anthyale** *Hbn.* is a form with *alba.* 554 *anthyale.* 555
narrow dark margins. — In Guatemala occurs **guatemalena** *Stgr. i. l.*, a deeper yellow form with somewhat *guatemalena* 55
broader dark margin to the upper surface. The under surface is somewhat more strongly dark-marked. —
Egg light yellow to red, iridescent. Larva slender, green, with light green longitudinal stripes; lives on clover.
Pupa light green.

C. chrysomelas *Hy. Edw.* (27a, b), from the coast districts of North California, is larger and in the *chrysomelas.* 5
male more glossy, also with broader dark margin than *philodice.* The under surface is dark orange, light yellow
in the middle of the forewing. The ♀ is much lighter yellow and has in the broad distal margin of the forewing
larger, but diffuse yellow spots. The under surface is light yellow.

C. hageni *Edw.* (27b), from Canada, has the forewing narrow and pointed, particularly in the male. *hageni.* 558
The upper surface in the ♂ is beautifully yellow, the black distal margin of the forewing, contrary to that of
other allied species, broadest at the inner angle. The ground-colour of the under surface is but little different
from the upper. The ♀ is grey-yellow, has broader grey-black distal margin, in which large yellow spots are
placed, the under surface is grey-yellow.

C. alexandra *Edw.* (27b) (the Alexandra Sulphur), from Colorado, is in the ♂ above similar to *philodice,* *alexandra.* 55
but has more glossy yellow ground-colour with orange-yellow tinge, particularly on the hindwing. The under
surface, however, is very different in both sexes, namely silver-grey on the hindwing with silvery median spot.
The ♀ is light yellow, has a small dark distal margin to the forewing or none at all, but black median spot, and
is sometimes suffused with orange-yellow.

C. edwardsii *Edw.* (27b), from Virginia, has the upperside lemon-yellow mixed with orange, with narrow *edwardsii.* 560
dark margins. The under surface is as uniform as in *alexandra,* but yellow, sprinkled with black on the hind-
wing, the distal margin is reddish. Probably a form of *alexandra.*

C. harfordi *Hy. Edw.*, from California, is lighter yellow above, with narrower dark distal margin, inter- *harfordi.* 561
sected by the yellow veins, and is still less marked beneath, in the female showing the beginning of a submarginal
macular band on the forewing and narrower distal margin (proximally dentate) than **barbara** *Hy. Edw.* (27b, c), *barbara.* 562
which also occurs in California. The lemon-yellow ♂ has narrow dark distal margins, the almost sulphur-yellow ♀
only a diffuse distal margin to the forewing. The under surface is similar to that of *philodice.*

C. boothii *Curt.* (27c), from arctic America (Boothia felix), occurring up to lat. 75°, appears to be very *boothii.* 563
rare. The markings in the sexes are not so different as is the case in the allied species. The ♂ has besides the
dark distal margin on the forewing an almost complete submarginal band and on the hindwing the beginning
of one. The under surface, particularly in the ♂, is strongly greenish. In ab. **chione** *Curt.* (as in the Palaearctic *chione.* 564
nastes ab. *insignata,* vol. I, pl. 25c) the dark distal margin of the forewing is wanting. — Flies from the middle
of July to the middle of August amd is fond of resting on the flowers of Oxytropis arctica and campe-
stris (CURTIS).

C. interior *Scudd.* (= occidentalis *Scudd.*, emilia *Edw.*, astraea *Edw.*) (27c), from South Canada and *interior.* 565
the Rocky Mountains (the Pink-edged Sulphur), is very similar to *philodice,* but the dark distal margins are
much narrower and the yellow ground-colour runs into them in streaks, the fringes are rose-red. On the under-
side the apex of the forewing and the anterior part of the hindwing are rusty orange-yellow. The ♀ has almost
white upper surface and broader, but diffuse, distal margin to the forewing.

C. scudderi *Reak.* (27c) (= Scudder's Sulphur), from Colorado, Utah, Montana and British Co- *scudderi.* 566
lumbia, has broader, but grey-besprinkled dark distal margin. The ♀ is usually white, very rarely yellowish,
and has only traces of dark margining. The under surface of the ♂ is yellow, dusted with grey-green at the

apex and distal margin of the forewing as well as on the hindwing, particularly at the costal margin. The silvery median spot of the hindwing is edged with reddish. Larva on bilberry and willow. EDWARDS' attempt at breeding was unsuccessful, as the larvae died during the winter. — The butterfly flies in July at an altitude of 9000 ft.

567 *nastes.* **C. nastes** *Bdv.* (27d) (the Arctic Sulphur), from Labrador, Greenland, Alaska and the Rocky Mountains in British Columbia, is dark grey-green with grey-black margins and red fringes. The ♀ is more yellowish and has more distinct yellowish submarginal spots on both wings. The under surface of the forewing is impure whitish, with greenish yellow scales, the rose-red fringes are conspicuous, the hindwing is yellowish green, lighter at the margin, the white median spot is bordered with red and distally to it is placed a diffuse red spot, the rose-red fringes are broader than on the forewing. The ♀ has a somewhat lighter under surface and on the forewing some small black submarginal spots. — 568 *rossii.* **rossii** *Gn.*, from Boothia felix, has in the ♂ a gold-yellow centre to the forewing above, the ♀ is white. — 569 *hela.* 570 *moma.* 571 *streckeri.* **hela** *Strecker*, **moma** *Strecker* and **streckeri** *Gr.-Grsh.*, from Hudson's Bay, are aberrations which cannot be accurately fixed, as the species varies as strongly in America as in Lappland (*werdandi*).

572 *behri.* **C. behri** *Edw.* (27d), from the mountains in the west of North America, principally of California, is a very variable species. The ♂ is above yellowish green, densely and regularly powdered with blackish, with conspicuous yellow median spot on the hindwing. The dark distal margin is indistinct on the forewing, but sharply defined on the hindwing. The fringes in the ♂ are yellowish, in the ♀ rose-red. The under surface in the ♂ is green-grey, the median spot is indistinct on the forewing, but on the hindwing conspicuous, as above, the costal margin of the hindwing is red. The ♀ has darker under surface and red fringes.

573 *imperialis.* **C. imperialis** *Btlr.* (27d), from Tierra del Fuego (Port Famine), is in both sexes so characteristically marked that it is impossible to confuse it with any other known species. Upper surface in the ♂ deep orange-red, the distal margin on the forewing broad, occupying fully a third of the wing, but narrower on the hindwing, both wings with large black median spot, inner margin of the hindwing yellow, under surface greenish yellow, middle of the forewing orange with light-centred black median spot and black submarginal markings and similar ones at the inner margin, hindwing with orange-red median spot and indistinct orange-yellow spots round the discocellular. ♀ less vivid orange with broader marginal markings, in which orange-red spots are placed; ground-colour of the under surface much more greenish than in the ♂, but with the same markings. The locality of this species has not as yet been established with certainty, but is probably correct.

574 *vautieri.* **C. vautieri** *Guér.* (27e), from Chile, is in the ♂ above orange-red with broad black-brown margin and median spot of the same colour on the forewing, the black-brown margin of the hindwing is much narrower and is suddenly reduced towards the inner angle; the hindwing has a smaller, indistinct dark median spot. The under surface of the forewing is orange-red, at the margins and particularly at the apex yellowish, and has a black median spot and a submarginal row of black spots, which are larger posteriorly. The under surface of the hindwing is yellow, slightly orange in the middle, the reddish median spot has a light centre, a reddish diffuse spot is placed at the base of the wing and in addition there is a row of small reddish submarginal spots; the inner margin is greenish. The ♀ has above yellowish white ground-colour, broader dark distal margins on both wings and light submarginal spots. The ground-colour of the underside of the forewing is impure white, of the hindwing yellowish. 575 *rutilans.* ab. **rutilans** *Bdv.* are ♂♂ with broader dark margin.

576 *cunninghami.* **C. cunninghami** *Btlr.* (27e), from ~~Ecuador,~~ is only known in the male. Similar to *vautieri*, but larger, apical and distal-marginal border narrower, fringes orange-yellow. Under surface differing but little from that of *vautieri*, the reddish spots of the hindwing larger, the black spots of the forewing on the contrary smaller, fringes rose-red.

577 *minuscula.* **C. minuscula** *Btlr.* (27e), from ~~Ecua~~dor, is apparently nothing but a „miniature edition" of *cunninghami*. The ♀ has white ground-colour, is similar to the *vautieri*-♀, has on the upper surface of the hindwing less marginal marking, but is more strongly marked on the under surface, particularly of the hindwing.

578 *meadi.* **C. meadi** *Edw.* (27d), from the mountains of Colorado, has orange-red ground-colour and almost uniformly broad, light-sprinkled, dark distal margin. In the ♂ the median spot of the forewing is only indicated, in the ♀ distinct, with light centre. The latter has small yellowish spots in the dark distal margin. The under surface is strongly yellow, in the middle of the forewing orange-red with conspicuous white, red-bordered median spot on the hindwing, less conspicuous dark median spot on the forewing and rose-red fringes. No white ♀♀ seem to occur in this species. — Larva on clover, not different from the *elis*-larva. Pupa shaped like that of *philodice*, colouring green-yellow, ventral side more vivid than dorsal, head-projection yellow, a dark dorsal costal line, small whitish spots on the whole body, wing-cases granulated. — Flies in July.

579 *elis.* **C. elis** *Strecker* (Strecker's Sulphur) (27f), from the western mountains of North America (Rocky Mountains), has brilliant orange-red ground-colour and much narrower dark distal margin than *meadi*. The ♀ has paler ground-colour and much more yellow submarginal marking. The under surface is more sombre on

account of the dark scaling. According to Strecker white ♀♀ also occur. The larvae hatch at the end of July, in captivity they pupate in the middle of April. The full-grown larva is dark yellow-green, on the back somewhat lighter than at the sides, densely covered with short black hairs which are placed on small tubercles, each of which is surrounded with whitish, on each segment a black spot (occasionally absent), above the legs a white stripe, head light green. Pupa like that of *meadi*.

C. eurytheme *Bdv.* (= amphidusa *Bdv.*) (27f) is distributed from Canada to Mexico and from the *eurytheme.* 580
Atlantic to the Pacific; the species does not appear to ascend high in the mountains. It is extraordinarily variable. — In **hecate** *Weeks* the wings are apparently somewhat more pointed, the veins in the apex of the fore- *hecate.* 581
wing are less prominently yellow, the ground-colour is somewhat deeper orange-red. ♀-ab. **alba** *Weeks* is dis- *alba.* 582
tinguished from the similar *eurytheme*-form ab. **albina** (= alba *Stgr. i. l.*) by more sharply defined and rounder *albina.* 583
white spots in the dark distal margin. — **keewaydin** *Edw.* is the winter form with paler ground-colour in both *keewaydin.* 584
sexes; the ♂ has often a narrower dark distal margin. — The summer form **eriphyle** *Edw.* (27e) has yellow ground *eriphyle.* 585
colour and is above only distinguished from *philodice* by the yellow veins in the apex of the forewing. — **ariadne** *ariadne.* 586
Edw. (27f) suggests a distinct species on account of the localized distribution of the yellow and the orange-red colouring and by the narrow distal margin. — **californiana** *Mén.*, from New California, is compared by the *californiana* 587
author with the European *edusa;* in the description no definite differential characters are given; the under surface is said to be as in *myrmidone.* — **autumnalis** *Cock.* is similar to *eriphyle*, but smaller, with narrower margins, *autumnalis.* 58
the hindwing is more grey-green. Flies in the autumn and spring. — Full-grown larva with dark velvety green back, on each side a narrow white line, on which are placed irregular shiny vermilion spots, some of them being shaded with orange-yellow. Under surface green. Pupa green with a stigmatal yellow line, above which on each segment is placed a brown dot, a subdorsal brown spot, which begins at the margin of the wing-cases and occupies two or three segments. Egg greenish white, transparent, pointed at one end and obtuse at the other, longitudinally ribbed, with oblique stripes between.

C. christina *Edw.* (27f, g), from the Slave River, has slight orange-red ground-colour and is conspicuous *christina.* 589
by the yellow basal part of both wings. The underside has no markings except the median spot. The ♀ is almost white, its forewing with only a little dark dusting at the distal margin and black, white-centred median spot.

C. lesbia *F.* is distributed from South Brazil (Rio Grande do Sul) southwards and westwards into the *lesbia.* 590
high mountains. Specimens from South Brazil, Uruguay and Argentina differ so little that they cannot be separated. This form is in the male dark orange-yellow, specimens with violet reflections are not rare; the black-brown distal margin is not sharply defined proximally. The under surface with the exception of the reddish middle of the forewing is vivid yellow with the usual *Colias*-marking. The ground-colour of the upper surface in the ♀♀ is very variable: orange-yellow, yellow, yellowish or white with grey dusting; greenish grey specimens also occur. The white ♀-form has the name ab. **heliceoides** *Capr.* Probably the name **pyrrhothea** *Hbn.* (27g) *heliceoides.* 591 *pyrrhothea.* 592
applies to the form from South Brazil, Uruguay and Argentina, whilst the paler specimens from Patagonia should be regarded as the true *lesbia.* — **andina** *Stgr.*, from Bolivia (3000—4000 m), is sprinkled with blackish *andina.* 593
and has a larger reddish basal spot on the underside of the hindwing. — **arena** *Stgr.*, from Tierra del Fuego (Punta *arena.* 594
Arenas), has narrower forewing with more pointed apex, light orange-yellow upper surface and broader dark distal margins. — **antarctica** *Stgr.*, from Tierra del Fuego, is a white ♀-form with unspotted distal margin. — *antarctica.* 595
puna *Fruhst.*, from Peru (Puno, 12 500 ft. elevation), has rounder wings, more thickly and darkly scaled, and *puna.* 596
narrower dark distal margin to the hindwing. — Flies from November to January. Ch. Darwin observed a large swarm of these butterflies in Patagonia.

C. hecla *Lef.* (= boothii *Bdv.*, groenlandica *Rühl*, glacialis *Mc. Lachl.*, hela *Strecker*) (27 g) occurs in *hecla.* 597
Greenland and extends there to lat. 82°. It differs from the Palaearctic form *sulitelma Auriv.* by dark, duller ground-colour; the under surface has the same character. — **pallida** *Skinner & Mengel* is a lighter form. *pallida.* 598

C. dinora *Kirby* (27 g), from Ecuador (12 000—16 000 ft.), is orange-yellow, with washed-out, moder- *dinora.* 599
ately broad dark distal margin to the forewing; the hindwing has a submarginal row of small, dark, inconspicuous spots. The under surface on the forewing is somewhat lighter, on the hindwing somewhat darker than the upper, the median spot is white, small and margined with reddish. The ♀ has lemon-yellow ground-colour and yellow spots in the dark distal margin of the forewing — **alticola** *Godm. & Salv.*, from Peru (3000 m), *alticola.* 600
is larger, has somewhat blue reflections, darker and broader distal margin to the forewing, also narrower distal margin to the hindwing, more distinct median spot, sharper yellow colour on the basal part of both wings and somewhat lighter, but more strongly marked under surface.

C. flaveola *Bl.* (27 h), from Chile and Bolivia (mountains), is pale orange-yellow in the ♀, in the rather *flaveola.* 601
broad dark distal margin of the forewing are placed four large yellowish white subapical spots, the under surface has dull sulphur-yellow ground-colour. Deeper orange-yellow coloured female specimens are common and may be designated ab. **saturata.** — **euxanthe** *Fldr.* (= Scalidoneura hermina *Btlr.*) (27 h), from Peru, *saturata.* 602 *euxanthe.* 603
differs but little. The upper surface is deeper coloured and the under surface more strongly marked. White ♀♀ go by the name ab. **alba** *Stgr. i. l.* *alba.* 604

605 *dimera.* **C. dimera** *Dbl.&Hew.* (= erythrogramma *Koll.*) (27 h) is likewise a mountain species indigenous to Colombia, Peru, Ecuador, etc., and apparently little variable. The upper surface of the forewing is orange-yellow, that of the hindwing lemon-yellow. The dark margin of the forewing is moderately broad, that of the hindwing somewhat variable, occasionally it is entirely wanting, as also the black median spot of the forewing. The under surface is sulphur-yellow and has a row of reddish submarginal spots, a diffuse spot at the base and a white, red-bordered median spot on the hindwing. The ♀ is above and beneath yellowish white.

25. Genus: **Meganostoma** *Reak.*

The species of this genus were formerly united with *Colias*. But apart from differences in neuration the *Meganostoma*-species are even superficially characterised by the sharply pointed forewing. The ♀♀ have an organ which is only observable in newly emerged specimens on account of its being so very perishable, namely soft, membranous, three-jointed structures on the tarsi of the middle and hindlegs, which have been named eupronechiae by their discoverer REAKIRT. Their purpose is not known. *Meganostoma* is further well differentiated from the other Pierids by the absence of a pad between the claws. The larvae live on Leguminosae.

606 V *eurydice.* **M. eurydice** *Bdv.* (= ♀ lorquini *Bdv.*, wosnesenskii *Mén.*) (26 f) (the Californian Dog-face), from California, has in the male a brilliant sheen on the upper surface only rarely occurring in Pierids. Occasionally also the hindwing has a narrow black distal margin. The ♀ is unicolorous yellow with a large black median spot on the forewing and reddish marginal spots. The marking of the under surface in both sexes is thoroughly *Colias*-like. The larva lives on Amorpha californica. Egg spindle-shaped, thick in the middle, running out into a rounded point, with longitudinal ribs. Full-grown larva cylindrical, of uniform thickness from segment 3 to 11, densely covered with small black tubercles, on each of which a very fine black hair is placed, from segment 3 to 11, a narrow white band above the legs, above this band on the 3. and 4. segments, in the middle of each segment, is a glassy, semicircular appendage, black with purple reflection; on the remaining segments this structure is only occasionally found. Colour dark green, underside blue-green, also the legs; head round, only a little depressed at the vertex, strongly covered with fine black dots, each of which bears a short black hair. Pupation takes place six days after the larva ceases to feed. Pupa laterally compressed, the thorax projecting on the ventral side and forming a narrow prominence, abdomen pointed, conical, mesothorax less projecting than in *C. eurytheme* and *philodice*, low, rounded, with a low keel, behind which there is a slight incision. Head apple-green, a white stripe at the sides of the abdomen. Duration of the pupal stage nine to ten days.

607 *cesonia.* **M. cesonia** *Stoll* (= sesonia *Mart.*, caroliniana *Pet.*) (26 f) (the Southern Dog-face) is distributed from the United States of North America to Argentina. The ♀ has reduced marginal marking, the black marking at the distal margin of the hindwing is always absent. — 608 *cesonides.* **cesonides** *Stgr.*, from Bolivia (3500 m), is smaller, has narrower black distal margin, and the black dusting at the base is almost entirely absent. — 609 *cerbera.* **cerbera** *Fldr.*, from Venezuela, has on the under surface of the hindwing red longitudinal stripes (is doubtless only an aberration). — 610 *rosea.* **rosea** *Stgr. i. l.*, from Colorado, has small black stripes instead of the black distal margin of the hindwing. — 611 *centralamericana.* **centralamericana** *Stgr. i. l.* has very broad black margin also to the hindwing and on the latter orange-yellow spots before the black distal margin. — 612 *bernardino.* **bernardino** *Edw.* is only a small form.

613 *philippa.* **M. philippa** *F.* (26 e), from Bolivia, has in the ♂ the apex of the forewing rounded, in the ♀ on the contrary it is rather pointed. In the marking there is no constant difference.

614 *cynops.* **M. cynops** *Btlr.* (26 e), from Haiti, has the apex of the forewing rounded in both sexes. The ♂ has broad black margin, in the ♀ this is broken up into spots.

615 *helena.* **M. helena** *Reak.* (26 e), from Bolivia, has, especially in the female, the forewing very sharply produced. The ♂ has no black margin to the light orange-yellow hindwing, in the ♀ the hindwing is likewise without markings except the yellow median spot and on the forewing the margin is broken up into spots. The under surface in both sexes has a considerable amount of red marking.

616 *therapis.* **M. therapis** *Fldr.* (26 f), from Venezuela and California, has the forewing sharply pointed. The ♂ is lemon-yellow, the ♀ light sulphur-yellow. Both have strongly reduced distal-marginal marking and on the under surface much red marking.

Very probably the genus *Meganostoma* has only two species, *eurydice* and *cesonia;* all the other forms described above I should consider only aberrant forms or slight local modifications of *cesonia*.

26. Genus: **Nathalis** *Bdv.*

This genus only embraces two small species, of which even the superficial appearance forbids any confusion with other genera. The antennae have strikingly knob-like clubs. The palpi are rather hairy than scaled and the subcostal has three branches, two of which branch off before the discocellular.

N. jole *Bdv.* (= felicia *Poey*) (27 h), from the southern States of North America, Mexico, Colombia *jole.* ✓617 and Cuba, is lemon-yellow with black apex and black innermarginal stripes on the forewing, also at the costal margin of the hindwing there is a long black spot. The ♀ has the upper surface of the hindwing pale orange-red. ab. **irene** *Fitch* (27 h) is a ♀-form with the hindwing deeper orange-yellow and more strongly marked *irene.* 618 with black. — **luteolus** *Reak.*, from Honduras, is a more orange-yellow form, strongly marked with dark. *luteolus.* 619

N. plauta *Dbl. & Hew.* (27 h), from Venezuela and Colombia, has yellow upper surface, very broad black *plauta* 620 distal margin to the forewing and a large orange-yellow spot at the anterior part of the hindwing. Under surface of the forewing in the middle orange-yellow, at the margin greenish yellow, the hindwing greenish, yellow at the margin. The ♀ has the upperside of the forewing almost black.

27. Genus: **Euchloë** *Hbn.*

Of this genus, which is represented in the Palaearctic Region by nine species, there are only three in the American Region. Antennae and palpi shaped as in the following genus *Anthocharis*. Of the five subcostal veins only one arises before the apex of the cell. The upper radial is coincident with the subcostal almost to $^1/_3$. — Egg spindle-shaped, with small protuberances at the sides. Larva slender with small head. Pupa pointed at both ends, the breast only a little raised.

E. ausonides *Luc.* (28 a) is distributed from Colorado to California, also occurring on Vancouver Island. *ausonides.* ✓621 Upper surface white with black median spot and grey-black apical and subapical markings on the forewing. Under surface white with black median spot on the forewing and yellow-green „parsley"-marking on the hindwing and the apex of the forewing. — Larva on Crucifers, cylindrically slender, head small, round, green, black-spotted, body entirely covered with black granules, each of which bears a short hair, longitudinally marked with three pale-coloured stripes, a dorsal one and one at each side, the interspaces yellow, the lateral stripes margined beneath with white to yellow; ventral legs greenish yellow, thoracic legs black. Pupa slender, cylindrical, thickest in the middle, uniformly pointed, grey-brown, and covered with fine dark longitudinal stripes.

E. creusa *Dbl. & Hew.* (28 a), from the Rocky Mountains, is similar to the preceding species, but the *creusa.* ✓622 black median spot of the forewing is large and square. The markings of the under surface are grass-green and the light spots on the hindwing are silver-white. Almost nothing is known of the early stages.

E. hyantis *Edw.* (28 a), from California, is above very similar to *creusa*, but on the underside of the *hyantis.* ✓623 hindwing more yellow-green and the spots are there only white but not shiny.

28. Genus: **Anthocharis** *Bdv.*

This genus is only represented in America by four species. It differs from the preceding genus in that two subcostal veins arise before the discocellular. The upper radial is only shortly coincident with the subcostal. Larva slender, narrower at both ends, with soft hairs. Pupa canoe-shaped, with strongly projecting breast (boot-shape), produced into a point at the ends, weakly keeled on the back.

A. sara *Luc.* (= flora *Wright*) (28 a) is distributed all over the United States of North America. Upper *sara.* ✓624 surface white with large orange-red apical spot, which is margined with black distally and proximally. Hindwing white. ab. **reakirtii** *Edw.* (28 a) differs from *sara* by the presence of black dots at the distal margin of *reakirtii.* 625 the hindwing. The ♀ of *sara* has slightly yellowish upper surface and smaller and paler orange spot. ab. **stella** *stella.* 626 *Edw.* has in the ♂ the bordering round the orange spot less black, also the spot itself is smaller and paler; the ♀ has yellow upper surface. ab. **julia** *Edw.* (28 a) differs from *sara* in that the proximal black bordering of the *julia.* 627 orange spot is interrupted and the hindwing has larger black marginal spots. — Earlier stages unknown.

A. thoosa *Scudd.* (28 a), from California (which is only known to me from the figure), shows in pattern *thoosa.* 628 no difference between the sexes, only the ground-colour of the ♂ above and beneath is white, that of the ♀ yellowish. Is probably scarcely a separate species, but a large, strongly marked form of *sara*.

A. cethura *Fldr.* (= angelina *Bdv.*, cooperi *Behr*) (28 a), from California, has in the ♂ the distal margin *cethura.* 629 of the forewing somewhat incurved. Upper surface white with small orange spot, very small dark apical markings, and black median spot. ♀ with stronger black markings. ab. **morrisoni** *Edw.* has larger and darker orange *morrisoni.* 630 spot also more black apical marking. — For this species Grote has erected the genus *Tetracharis*.

631 *pima.* **A. pima** *Edw.* (28 a), from Arizona, flies at the middle of March. Upper surface in both sexes yellow, the black apical marking sometimes encroaches more or less on the yellow subapical spot. Under surface of the hindwing yellow-green and marked with white.

29. Genus: **Midea** *H.-Schäff.* ([illegible])

The principal character of this genus consists in the shape of the wings, the forewing is somewhat falcate. The neuration is scarcely different from that of *Anthocharis*. It is therefore purely a matter of opinion whether the following species should be added to *Anthocharis* or associated in a separate genus.

632 *genutia.* **M. genutia** *F.* (= midea *Hbn.*, l'herminieri *Godt.*) (the Falcate Orange-tip) (28 b) occurs throughout the United States, in the north in one generation, in the south in two. Upper surface in both sexes white with black median spot and black apical markings, the ♂ with orange-yellow spot in the apex of the forewing. Under surface white with grey-green markings on the hindwing and the apex of the forewing. — Egg long, narrow, thickest in the middle, moderately rounded towards the base, the latter broad and flattened, suddenly narrowed towards the apex, so that the upper half is conical, the apex impressed, the micropyle surrounded by small, irregular hexagonal cells, vertically ribbed, the number of the ribs about 16, of which half reach the tip and the others terminate not far from it, the interspaces filled up by numerous fine grooves. Colour yellow-green. Duration of the egg-stage four days. Full-grown larva cylindrical, slender, head broad, colour dark yellow-green, shiny, underside, ventral and thoracic legs lighter, a yellow band in the middle of the back from the 2. to the 13. segment, a broad white band above the legs, upperside decorated with six longitudinal rows of shiny black tubercles, each with a short black hair which is thicker at the end. Pupa slender, abdomen long, round and pointed, head with a pointed appendage, on the ventral side of the thorax an almost triangular, laterally compressed lump, which is hidden by the wing-cases; colour usually light yellow-brown with a reddish tinge and darker on the mesothorax, the prolongation of the head brown, the wing-cases more or less spotted and striped with black, at the back of the abdomen a row of small black spots, two to four on each segment, and a subdorsal row of small spots or dots.

633 *limonea.* **M. limonea** *Btlr.* (28 b), from Mexico, is much larger than *genutia*, has the upper surface of the hindwing yellow, and the forewing is not pure white as in *genutia*. The marking at the apex of the forewing is rather different from that of *genutia*.

634 *lanceolata.* **M. lanceolata** *Luc.* (Boisduval's Marble) (28 b) is distributed from North California to Alaska, but rare. The upper surface is white with black median spot and slight blackish apical markings, which are enlarged in the ♀. The under surface is sprinkled with brown, the veins especially are distinctly scaled with brown. — Larva green, laterally light blue with white stripes, also with small black dots, each with a short black bristle; it lives on Turritis.

30. Genus: **Zegris** *Rbr.*

The Palaearctic species of this genus are distinguished by their life-history. The larvae do not pupate free like most other Pierids, but in a cocoon in which traces of the girdle are still present. As the larva of the only American species is not yet known, it cannot be proved with certainty whether it belongs to this genus. But according to the neuration and the marking of the under surface *olympia* belongs to the genus *Zegris*.

635 *olympia.* **Z. olympia** *Edw.* (28 b), from Texas, is white above, with large black median spot and small, shadowy apical markings. The under surface has the markings shown in the figure, which are somewhat reduced in
636 *rosa.* ab. **rosa** *Edw.*

31. Genus: **Eroëssa** *Dbl.*

This genus is nearly allied to the Palaearctic and North American *Euchloë* and *Anthocharis*, in it, however, both the radials of the forewing are free and the cell is consequently closed by three discocellulars. The forewing has slightly undulate distal margin and five-branched subcostal, the two first subcostals arise before the end of the cell, the third far behind it. The precostal is directed proximally. The palpi are very slender, anteriorly long-haired. The only species of this genus inhabits the high mountains of Chile.

637 *chilensis.* **E. chilensis** *Guér.* (28 c) has white ground-colour on the upper surface, with black apical half of the forewing, in which is placed a large orange-red spot. The hindwing has a row of black marginal and submarginal

spots; in the ♀ the latter are larger and hook-shaped, also the orange-red submarginal spot is narrower and there are two white spots in the apex of the forewing. Beneath the ground-colour of the hindwing in the ♂ is white, in the ♀ light yellow; the black spots placed in the middle of the hindwing are more distinctly edged with rust-yellow in the ♂. Apparently rare and local.

32. Genus: **Andina** *Stgr.*

This genus, containing only one species, inhabits the mountains of Bolivia at the highest limit at which animal life can exist. The butterfly was discovered by G. Garlepp at an elevation of about 5800 m. The upper surface of the species presents the appearance of a pale-coloured *Colias*, the under surface is also *Colias*-like, but the veins and the structure of antennae show that it is not very closely allied to this genus. The antennae have distinctly knob-shaped clubs, the lower radial of the forewing arises directly from the subcostal, hence the upper and middle discocellulars are wanting; the upper radial does not arise until far beyond the discocellular. The hindwing has a well developed precostal, directed proximad.

A. huanaco *Stgr.* (28 c) is in the ♂ white above, the smaller ♀ yellowish, the base suffused with blackish, the forewing has a marginal and a shorter submarginal band as well as a large black median spot, hindwing without markings. Under surface of the forewing white resp. yellowish, costal margin and apex dusted with grey, with smaller subapical spots and smaller median spot. Under surface of the hindwing dark grey, more or less dusted with yellow-brownish, with a light median spot and a row of not very distinct blackish submarginal spots. — Garlepp says: „it flies only on the highest summits of the Cordilleras, amidst the wildest boulders and most desolate masses of rock; I cannot understand its choosing such wastes and deserts, or how it can exist there at all, where it must sometimes be daily covered with snow and ice, where there is absolutely no vegetation, and where only the condor makes his abode". In these heights a tempestuous wind constantly prevails, so that the insect can only fly in the brief lulls. Was taken in February. *huanaco.* 638

33. Genus: **Phulia** *H.-Schäff.*

The habits of this genus are almost the same as those of *Andina*, except that *Phulia* does not ascend to the summits of the mountains, but stops at a height of from 4000 to 5000 m. The species fly at the same time as *Andina*. — Whilst in *Andina* the second subcostal vein branches off at the discocellular, in *Phulia* it mostly arises before the end of the cell, occasionally at the cell-end (*nysias*), on the other hand the lower radial is always coincident with the subcostal, though sometimes only for a little way (*nympha*); the cell is therefore only closed by the lower discocellular. The species are very similar. The genus most nearly allied to this and the preceding one is *Baltia*, from the highest mountains of the Palaearctic Region.

P. nymphula *Bl., Stgr.* (28 c) has been described from specimens from Chile, but Staudinger identifies a species from Bolivia (that figured as *nymphula*) with it. Blanchard's figure does not appear to be accurate; so long as no Chilian specimens can be compared it remains uncertain whether the form figured is the true *nymphula*. It is one of the larger species of the genus. *nymphula.* ✓6

P. nympha *Stgr.* (28 c, d), from Bolivia, is the largest species of the genus and has also the most markings both above and beneath. Very striking, particularly in the ♂, is the basally prolonged black median spot on the upperside of the forewing. *nympha.* ✓64

P. nymphaea *Stgr.* (= nymphula *Weym.*, nymphula *Stgr.*) (28 d), from Bolivia (Illimani and Cocapota), has rather reduced black markings on both surfaces. The ♀, in addition to an increase of the black markings on the forewing, has also rather large, wedge-shaped black spots on the upperside of the hindwing. *nymphaea.* ✓6

P. illimani *Weym.* (28 d), from Bolivia (Illimani and Cocapota), has somewhat stronger black apical marking, but no subapical one, and the black median spot is wanting. The under surface of the forewing has at the apex grey-yellow dusting only, but no black marking. *illimani.* ✓64

P. nymphagoga *Stgr. i. l.* (28 d), from Bolivia (Cocapota), is one of the smallest species, and has on the forewing a considerable amount of black marking, also a black median spot, but in the ♂ the hindwing is entirely without markings. The ♀ has on the forewing more black markings (the marginal macular band reaches to the inner angle) and the hindwing has rather large black marginal spots, also small submarginal spots, and is besides somewhat dark-scaled. The under surface, especially at the apex of the forewing, is more marked with black than in the other small species. *nymphagoga* 64

P. nysias *Weym.* (28 e), from Bolivia (Illimani and Cocapota), is distinguished at once by the under surface of the hindwing, which (as in *Andina huanaco*) is grey with black spots. The ♀♀ are vivid sulphur- *nysias.* 644

yellow and have more black markings, also on the hindwing small black marginal spots, and the veins of the forewing are dusted with black.

645 **P. nysiella** *Stgr. i. l.* (28 d), from Bolivia (Cillutincara, 3000 m), taken by Garlepp in January 1896, is the smallest species, with broader forewing. Upper surface white, hindwing without markings, forewing with sharply separated small black marginal spots, three larger black subapical spots and very small black median spot. Under surface similar to that of *nysias*, but the hindwing lighter grey, with much yellowish scaling, forewing with small, very indistinct subapical spots, median spot of the forewing absent. ♀ still unknown.

34. Genus: **Pseudopieris** *G. & S.*

With this genus begins a small group of genera which cannot with certainty be reckoned Pierids and yet can still less be associated with any other family. The position of the last genus *Styx* especially is very doubtful. *Pseudopieris* was formerly united with *Dismorphia*, but has rightly been separated from it. Although there is no decisive difference in the neuration, yet the much more Pierid-like facies, as well as the form of the short antennae, which do not at all possess the length characteristic of *Heliconius* or the Ithomiids, and also the want of striking sexual dimorphism, present sufficient generic characters. — According to the observations of Herr Rich. Haensch the forms of *Pseudopieris* do not differ essentially in habits from the *Pieris*-like Dismorphias.

P. nehemia is distributed from Mexico to South Brazil, and also occurs in the mountainous west. Upper
646 *nehemia.* surface in both sexes white with black margin to the forewing. This is very narrow in **nehemia** *Bdv.* (= cydno
647 *viridula.* *Dbl. & Hew.*) (28 e), only exceptionally somewhat broader. It is not much broader in **viridula** *Fldr.*, from Co-
aequato- lombia, which has slightly greenish upper surface. This border is much broader in the apex of the forewing
648 *rialis.* in **aequatorialis** *Fldr.*, from Ecuador. The underside in all these forms is white on the forewing, yellowish
on the hindwing and the apex of the forewing. A blackish spot on the discocellulars of the hindwing is occasionally absent in *nehemia*, in the other forms apparently constant.

649 *penia.* Whether **P. penia** *Hopff.* (28 e), from Peru, is a separate species, I must leave undecided. In this form the black apical border is still broader than in *aequatorialis*, but in addition the border is strongly widened in the middle of the distal margin. As there is no blackish spot at the discocellular on the under surface of the hindwing, Hopffer considers *penia* as a separate species. But as was shown in *nehemia*, the presence or absence of this spot cannot be taken as a specific criterion.

35. Genus: **Dismorphia** *Hbn.*

This genus is distributed from the southern states of North America to South Brazil and from east to west, especially developed in the western mountains, but most species have not a large area of distribution. All the species differ so considerably both in superficial appearance and in neuration from their relatives that they cannot be recognised as ,,Whites“ without further examination. They doubtless represent another branch of the Pierid stirps. Their nearest relatives — with the exception of *Pseudopieris* — are the Palaearctic *Leptidia* and perhaps *Pseudopontia* from West Africa. A great number of the species resemble Ithomiids, Acraeids (*Actinote*) and Heliconines, which are protected by their bad smell and taste, yet cases of deceptive similarity are not common. Sometimes only the female is a so-called mimic. The sexual dimorphism in many species is so great that the identity of the sexes can only be proved with difficulty. — Butler not only retained Hübner's genus *Enantia* (with *melite* as type), but also erected a further genus, *Moschoneura* (with *methymna* as type). Since there is neither any necessity for such a division, nor are the characters given for these genera tenable, the genus (which is also known under the name *Leptalis Dalm.*) is here retained in the customary extent. — I am indebted for the following biological notes to Herr Rich. Haensch, who made observations during his travels in South America, especially in Ecuador: larva and pupa are not known to him. The Ithomiid-like species, such as *orise, theonoe*, etc., like the Ithomiids, are fond of the shades of the thick forests of trees, whilst the more brightly coloured ones, *praxinoe, astyocha*, are also found in lighter places in the woods. The ♂♂ of the latter when flying assume a position in which the large light spot of scent-scales on the upper surface of the hindwing is covered, so that they, like their ♀♀, are not distinguishable from the similarly marked *Mechanitis*. Forms like *nemesis, critomedia, leonora*, etc., prefer small clearings in the woods and are fond of resting, with the wings spread out, on the tops of bushes upon which the sun shines. The seasonally common yellow and white forms, such as *medora, limnorina, Pseudopieris nehemia*, etc., make their appearance at the beginning resp. end of the rainy season often in large numbers on scented umbelliferous flowers by the wayside and at the edges of the woods; they do not differ noticeably from the true Pierids. The mimetic forms are scarcely distinguishable in their habits from the similar Ithomiids; they occur in the same localities as these, but do not fly in company with them. On the other hand their colouring regularly corresponds with the local forms of Ithomiids, which is especially well seen in the *theonoe*-forms.

cretacea. 650

D. cretacea *S. & K.* (28 e), from South Brazil (Espirito Santo), has white upper surface with broad black apex, which, especially in the ♀, is strongly sinuate in the posterior part. The hindwing has small black distal border. The under surface is yellowish white, the forewing without markings in the ♂, in the ♀ with a black subapical band and a black spot near the inner angle, the hindwing has 2 black-grey transverse bands, of which one is placed in the centre, the other near the costal margin.

isodrita. 651

D. isodrita *Bdv.* (28 e), said to be from Brazil, known to me in one ♀ from Colombia, is scarcely specifically different from *cretacea.* The black apical margin differs but little from that of *cretacea,* but has a very small white subapical spot, the hindwing is entirely without markings. The under surface is more yellow and the black subapical band of the forewing reduced to an indistinctly defined spot.

flavia. 652

D. flavia *Fldr.* (*H.-Schäff. i. l.*), from Venezuela, is similar to *isodrita,* but is said to have shorter wings and narrower cell. Unknown to me.

psamathe. 653

D. psamathe *F.* (28 f), said to be from Guiana and Para, only known to me from South Brazil (São Paulo and Santa Catharina), has in the black apex of the forewing a large white spot. The ♀♀ have mostly strongly yellow hindwing. The under surface of the hindwing and the apex of the forewing are light ochre-yellow, the hindwing has 2 grey-black transverse bands, in the ♂♂ the black subapical spot of the forewing is occasionally absent.

acutipennis. 654

disjuncta. 655

D. acutipennis *Btlr.*, from Trinidad, only before me in a ♂ from Colombia, differs from *psamathe* only in having a lighter yellow under surface. — **disjuncta** *form. nov.* (28 f), from Rio Grande do Sul, is distinguished by the proximal part of the black apical spot being broken up and the under surface as yellow as in *psamathe* (seasonal form of *psamathe*?).

mercenaria. 656

D. mercenaria *Fldr.* (28 f) comes from Venezuela, I have before me specimens from Peru; whether these are different from Venezuelan specimens I cannot say. It has in the male a somewhat narrower forewing and differently shaped margin to the black apical spots, but is otherwise, especially in the female, not different from *cretacea.*

= versicolora

= carnosa

licinia. 657

D. licinia *Cr.* (= galanthis *Bates*, phronima *F.*) (28 f), from the Upper Amazon (Peru), is distinguished from *mercenaria* by the different shape of the proximal boundary of the black apical spot. The under surface is somewhat lighter yellow.

aphrodite. 658

D. aphrodite *Fldr.*, from Brazil, is above chalk-white, distal margin black-brown with a white spot, hindwing unicolorous. Under surface of the forewing in the ♂ sulphur-yellow in the middle, costal margin and base saffron-yellow, small blackish dots at the costal margin, ♀ unicolorous, costal and hind margins ochre-yellow, black-brown apical band, hindwing in the ♂ ochre-yellow, in the ♀ much lighter, both beneath with brownish stripes. Unknown to me.

marion. 659

D. marion *G. & S.* (28 g), from Central America and South Brazil (Santa Catharina), is similar to *psamathe,* but has, in addition to the differences in the markings, both wings differently shaped. The underside of the forewing is less strongly marked.

thermesia. 660

thermesina. 66

D. thermesia *Godt.* (28 g), from Brazil (São Paulo), has the forewing very narrow in the male. In the ♀ the oblong black median spot of the forewing is absent. The under surface is pearly white with dark scale-spots, the ♀ has also black subapical markings on the forewing, which are wanting in the ♂. — **thermesina** *Hopff.*, from Peru, has more black markings.

limnorina. 662

D. limnorina *Fldr.* (28 g), from Brazil (Minas Geraës), has peculiar wing-contour. The wings in the ♀ are entirely light yellow, in the ♂ light yellow in the posterior half. The underside has black submarginal markings on the forewing in both sexes, but less in the ♂.

dilis. 663

D. dilis *Bdv.*, from Brazil, is similar to *licinia,* but has on the forewing narrower and shorter black markings. Under surface as in *licinia.* Only known to me from the description.

theugenis. 664

D. theugenis *Dbl.* (= colon *Weym.*) (28 h), from Bolivia and Peru, has deep sulphur-yellow upper surface with broad black apical marking and black median spot on the forewing as well as black margin to the hindwing. The under surface is sulphur-yellow except for the white posterior part of the forewing, the forewing has a black marginal spot in the middle of the distal margin and the hindwing 3 blackish transverse bands. ♀ unknown to me.

= idae fass

melite. 665

D. melite *L.* (28 h), from South Brazil (Santa Catharina and Rio Grande do Sul), has canary-yellow upper surface with black marginal and central markings. The under surface as in the allied species is yellow with 2 blackish transverse bands on the hindwing. The ♀♀ have broader forewing and much lighter yellow

= citrinella

666 *alba.* 667 *jethys.* ground-colour, almost white specimens are not rare: ab. **alba** *form. nov.* — **jethys** *Bdv.* (= melite *Koll.*) („the Mime“ of the North Americans) occurs in Mexico, but probably also further south. This form has additional black markings, such as a stripe from the base to the inner angle of the forewing.

668 *cornelia.* **D. cornelia** *Fldr.* (28 h), from Mexico, has ochre-yellow upper surface with black-brown markings on the forewing and black-brown, irregular distal margin to the hindwing. The under surface with the exception of the whitish posterior part of the forewing is ochre-yellow with brownish spots and dots on the hindwing. 669 *amalia.* — **amalia** *Stgr.* (28 h), from Chiriqui and Colombia, has much less dark marking on the forewing, especially the broad median stripe is entirely absent, and the hindwing has a uniformly broad dark distal margin. The ground-colour is above and beneath lighter.

670 *mirandola.* **D. mirandola** *Hew.* (29 a), from Ecuador and Colombia, has black upper surface to the forewing with yellow markings. The hindwing is clay-yellow on the anterior part (scent-spot), sulphur-yellow on the posterior part, and has black markings. The ♀ has on the forewing more and lighter yellow markings, the hindwing is light sulphur-yellow with black distal margin. The under surface in both sexes is light yellow with silver-white spots and dark dusting. [illegible] = [illegible] = 671 *cauca.* — **cauca** *form nov.*, from West Colombia (Cauca Valley), has in the ♂ continuous yellow median band on the forewing, more reduced clay-yellow scent-spot on the hindwing, the yellow marking near the base of the forewing wanting.

672 *carthesis.* **D. carthesis** *Hew.* (29 a), from Ecuador, is similar to *mirandola*, but has larger subapical spots on the forewing, no yellow marking near the base of the hindwing, but a larger yellow spot at the inner margin. The hindwing has a narrower yellow median band and much broader black distal margin. The under surface has on the hindwing a broad yellow median band and broad black distal margin, in which are placed reddish white submarginal spots.

673 *idonia.* **D. idonia** *Hew.*, from Ecuador, has the forewing similarly marked to that of *carthesis*, but the yellow spot at the inner margin is absent. The yellow median band of the hindwing is more obliquely placed. The under surface is entirely different: the grey-blackish hindwing has two yellow central transverse bands and some small yellow marginal spots.

674 *zaela.* **D. zaela** *Hew.* (29 a, b), from Colombia and Ecuador, has on the black-brown forewing in the ♂ chrome-yellow central and subapical spots. A large part of the hindwing is occupied by a grey scent-patch with a silky gloss, the posterior part of this wing is proximally yellow, distally chrome-yellow, the distal margin black-brown. The ♀ has light yellow markings on the forewing and a light sulphur-yellow hindwing with broad black margin. The under surface in both sexes is marbled with white and grey-brown.

675 *arcadia.* **D. arcadia** *Fldr.* (29 b), from Colombia, is similar to the preceding species, but has in both sexes light canary-yellow markings. On the hindwing the ♂ has one yellow band and the ♀ two. The underside is similar to that of *zaela*, but much yellower.

676 *crisia.* [illegible] ♀ = **D. crisia** *Dru.*, from „Brazil“, is about the same shape as *arcadia* and the markings are similar. The inner margin of the forewing is whitish, in the ♀ the median spots are smaller. — Only known to me from Boisduval's description.

= con Std.

677 *medora.* **D. medora** *Dbl.* (♀ = casta *Koll.*) (29 b), from Colombia and Venezuela, has also a yellow spot at the inner margin of the forewing; on the grey, silky scent-patch of the hindwing there is a sharply defined, oval grey spot of scent-scales. The ♀ has much broader yellow markings. 678 *medorina.* — **medorina** *Hew.*, from Bolivia, has three larger yellow subapical spots on the forewing and the posterior yellow spot of the median band is separated from the other spots. 679 *medorilla.* The yellow band of the hindwing is orange-yellow in the anterior part. — **medorilla** *Hew.*, from Ecuador and Peru, has smaller yellow spots on the forewing and narrower yellow band on the hindwing.

= albimacula Rob.

680 *proserpina.* 681 *demeter.* **D. proserpina** *S. & K.*, from the Roraima, has above and beneath much lighter (almost white) markings than **demeter** *form. nov.* (29 b), from Colombia and Venezuela, the latter has moreover on the scent-patch of the hindwing no special, sharply defined scent-scale-spot like *proserpina* (separate species?); *proserpina* I only know from the figures and descriptions. The under surface is much yellower in *demeter* but is otherwise not different from that of *proserpina*.

682 *othoë.* **D. othoë** *Hew.* (29 c), from Ecuador and Colombia, is above black-brown with yellowish markings. In the ♀ the markings are more whitish and larger. The underside is pale yellow with blackish scale-markings.

683 *zathoe.* **D. zathoe** *Hew.*, from Colombia, is similar to *othoë*, but the median spots are smaller and yellower and the subapical spot is larger and white, also the band of the hindwing is more sharply yellow.

684 *lelex.* **D. lelex** *Hew.*, from Ecuador, is somewhat larger than *zathoe* and has paler yellow markings, the median spots of the forewing are larger, on the other hand instead of the one large white subapical spot there are two

small yellowish spots. The hindwing is yellow and has only in the anterior part a proximally dentate black distal margin.

D. pimpla *Hopff.* (29 c), from Bolivia, has the yellow subapical spots differently placed, also yellow dusting at the base of the forewing. The hindwing has the black margin narrow but uniform. *pimpla.* 685

D. pallidula *Btlr.* (29 c), from Costa Rica and Chiriqui, has white markings and a large, grey, oblong scent-patch on the hindwing. *pallidula.* 686

D. lysis *Hew.* (29 c), from Ecuador, has the white markings enlarged, no subapical spots, and the ♀ has on the forewing a broad white median band reaching from the costal to the inner margin. The under surface has pearl-white spots and much grey-yellow scale-marking. — **peruana** *form. nov.*, from Peru, is somewhat smaller, paler black and beneath with grey instead of yellow scales. *lysis.* 687 *peruana.* 688

D. foedora *Luc.* (29 d), from Venezuela and Peru, is white above with broad black apex and two subbasal stripes, of which the posterior one is joined to the border of the distal margin; the hindwing has a moderately broad black border. The ♀ has on the forewing less black marking, on the other hand almost the whole posterior half of the hindwing is occupied by the black border. Both sexes have small white subapical spots. The under surface is white with irregular dark markings. The ♀ has more and darker markings. *foedora.* 689

D. virgo *Bates* (29 d), from Guatemala and Chiriqui, has black upper surface with white markings; in the ♂ the scent-spot occupies the whole posterior half of the hindwing and is shiny grey-white; the ♀ has on the hindwing a broad white median band. — **lubina** *Btlr.*, from Costa Rica, is distinguished by the white median spot being divided by black veins. — **lunina** *Btlr.*, from Costa Rica, differs in the ♀ from *virgo* in that the upperside of the hindwing is greenish at the inner margin. *virgo.* 690 *lubina.* 691 *lunina.* 692

D. lua *Hew.* (29 d, e), from Colombia, Ecuador and Peru, has very narrow forewing and broad hindwing. Upper surface black-brown with yellow spots, anterior half of the hindwing in the ♂ white-yellow. ♀ with yellow bands and spots on the forewing and yellow hindwing broadly margined with black-brown. Under surface yellow with blackish bands on the hindwing, the ♀ on the forewing also with subapical and median black band. *lua.* 693

D. lycosura *Hew.*, from Peru, has almost black forewing with a large light yellow spot in the middle and two small subapical yellow spots, hindwing grey-black with almost white scent-patch on the anterior part. Under surface grey-black with large yellow spots in the middle of the hindwing and some red spots at its base, at the costal margin of the forewing three small yellow spots. Only known to me from the figure. *lycosura.* 694

= ecuadorensi

D. leonora *Hew.* (29 e), from Ecuador, has a smaller yellow spot in the middle of the hindmargin of the forewing than *lycosura*, but also several small yellow spots. The hindwing is black-grey, on the grey-white, silky scent-patch (friction-area) of the hindwing is placed a rather sharply defined yellow scent-scale-spot, the inner margin of the hindwing is broadly grey-blue. The ♀ is very different: white with broad black margins, a black band in the cell of the forewing and three small white subapical spots. Under surface pearl-white with yellow interneural stripes in the ♂, whilst the ♀ has blackish markings which correspond more to those of the upperside. *leonora.* 695

= macasana

D. niepelti *Weym.*, which forms a transition to *lewyi*, differs from it in that the wedge-spot behind the middle of the costa in the ♂ is reduced to a streak and the whitish inner-marginal spot of the forewing is so much enlarged that it extends beyond the median into the cell; from Ecuador.

D. lewyi *Luc.* (= nasua *Fldr.*, ♀ kadenii *Fldr.*) (29 e), from Venezuela, Colombia and Ecuador, has black upper surface with subapical and postmedial yellow spots as well as whitish stripes at the inner margin of the forewing. The hindwing is black-brown, the scent-scale-patch is yellowish, the broad yellow inner margin is divided into spots by the black veins. The ♀ is yellowish white with broad black margins. Under surface pearl-white with yellow markings on the posterior and brownish markings on the anterior part of the hindwing. In the ♀ these markings are black-brown, also the forewing has black-brown subapical markings and black-brown markings in the cell. — **boliviensis** *Stgr. i. l.*, from Bolivia and Peru, has larger subapical and postmedial yellow spots on the forewing, but the light stripe at its inner margin is absent; the yellow markings on the posterior part of the hindwing are somewhat lighter. *lewyi.* 696 = ~~lygdam~~ = dolorita ? *boliviensis.* 697

D. schausii *Dogn.*, from Ecuador (Loja), has a similar female to that of *lewyi*. Upper surface black-grey with three white subapical spots and a small white spot at the costal margin at the discocellular, basal part of the forewing white, upper surface of the hindwing black-grey, anterior part bluish white, under surface of the forewing similar to the upper, but the subapical spots light yellow, hindwing black with yellow costal margin, a small yellow stripe in the cell and three red basal spots. *schausii.* 698

D. critomedia *Hbn.* (= crisia *Fldr.*) (29e, f), from Venezuela, Colombia and Brazil (?), has on the black forewing a strongly curved broad white median band, which in the ♀ is divided by a broad black stripe. The hindwing is white with black margins. Under surface white with dark markings. *critomedia.* 699

= tolimensi

700 *euryope.* **D. euryope** *Luc.* (29 f), from Mexico, is above black with yellowish white median band on the forewing. The large friction-spot of the hindwing is light bluish, the scent-scale-spot on it white, from the inner margin to the middle of the hindwing runs a yellow band, divided into spots by the black veins. Only known to me from the figure.

701 *ines.* **D. ines** *spec. nov.* (29 f), from Ecuador, is a good deal like *euryope.* The median band is much narrower and snow-white, at the inner margin of the forewing there is a small yellow scale-stripe. The ♀ has sulphur-yellow hindwing, broadly margined with black-brown. The underside has dull gloss, is grey-black and has white spots.

702 *lygdamis.* **D. lygdamis** *Hew.* (29 f), from Ecuador, has black upper surface with bluish markings. The under surface is much more like that of a *Catasticta* than a *Dismorphia.* Only known to me from the figure.

itas Fassl =

703 *hyposticta.* **D. hyposticta** *Fldr.*, from Venezuela and Colombia, has in the female yellow upper surface with broad black-brown distal margin, interrupted median band and 3—4 small white subapical spots on the forewing, the yellow ground-colour of the hindwing makes a tooth into the dark distal margin between the 3. median vein and the lower radial. Under surface of the forewing similar to the upper, paler, with yellow marginal spots, hindwing black-brown with a number of large yellow spots. Only known to me from the description.

704 *hippotas.* **D. hippotas** *Hew.* (29 g), from Ecuador, has black-brown upper surface with white spots. The ♀ is very similar to the ♂. Under surface impure white with yellowish spots of scales. The ♀ has also black markings on the forewing.

705 *teresa.* **D. teresa** *Hew.* (= praxidice *Hew.*) (29g), from Ecuador, has black-blue, somewhat glossy upper surface with white spots. The ♂ has besides the clay-yellow scent-spot at the costal margin of the hindwing a large „brand“ on the upper surface in the middle of the forewing. The ♀ is very similar to the ♂. Underside similar to that of *hippotas.*

706 *praxidice.* **D. praxidice** *Hew.*, from Ecuador, has more rounded forewing than *teresa*, somewhat darker under surface, otherwise no constant differences.

707 *nemesis.* **D. nemesis** *Latr.* (= atthis *Dbl.*) (29 g), from Mexico, Venezuela, Colombia, Ecuador, Peru, etc., has the upper surface of the forewing dark brown with small yellow spots, the anterior half of the hindwing (scent-area) is shiny grey, the posterior part yellow. The ♀ is very different: white or yellowish with black markings, the hindwing has only a narrow black distal margin. The under surface is grey with lighter and yellow spots. — 708 *viridifascia.* **viridifascia** *Bltr.*, from Costa Rica, has smaller, linear yellow spots and on the hindwing a light greenish band. ♀ with light brown margin.

709 *cinerascens.* **D. cinerascens** *Salv.* (29 g, 30 a), from Costa Rica and Chiriqui, is black above and has on the forewing white spots and on the hindwing a grey-blue, wedge-shaped band before the black distal margin. The ♀ has black hindwing with a broad white median band. The under surface is similar to that of *nemesis.*

710 *melia.* **D. melia** *Godt.* (30 a), from Brazil (Santa Catharina and São Paulo), has the forewing black above with yellow markings and the hindwing yellow with black markings. The ♀ is a so-called Acraeid-mimic, rather similar to *Acraea* (*Actinote*) *thalia* and resp. *anteas*; this (Brazilian) form is 711 *acraeoides.* **acraeoides** *Hew.* (30 a), the other form, 712 *mimetica.* **mimetica** *Stgr.*, from Cayenne, has more yellow ground-colour, but does not differ in the markings.

713 *larunda.* **D. larunda** *Hew.* (30 a), from Ecuador, is a mimic of *Heliconius.* Upper surface black with yellow median band and yellow submarginal spots as well as large red basal spot on the forewing and similarly marked hindwing. The proximal part of the hindwing is beneath red, the broad black border has small white spots and at the distal margin there is a yellow submarginal band.

714 *spio.* **D. spio** *Godt.* (30 a), from the Antilles, has the forewing sharply falcate in both sexes. In the ♀ the yellow-red markings of the ♂ are sulphur-yellow.

715 *cubana.* **D. cubana** *H.-Sch.* (30 b), from Cuba, has the forewing only moderately pointed and resembles *spio* in markings and colouring.

716 *lysianax.* **D. lysianax** *Hew.* (30 b), from the Upper Amazon, has the forewing completely rounded. Only the ♀ is known, which differs from the ♂ of *cubana* by the absence of the yellow subapical spots and further in that the yellow median band is extended to the base in a narrow stripe at the costal margin.

717 *tricolor.* **D. tricolor** *S. & K.* (30 b) resembles *Heliconius vicinus Mén.* Only the ♀ is known. Upper surface black, forewing with a broad yellow median band and red inner-marginal stripe, hindwing with red median band and a yellow-red submarginal spot at the distal margin. Under surface similar, but the red on the hindwing reduced to small stripes, and white submarginal spots. Habitat still unknown.

tina Röb. =
ua Röb =
Röb. =

718 *amphione.* **D. amphione** *Cr.* (30 b, c), from Guiana, bears a superficial resemblance to certain forms of *Heliconius erato.* — 719 *arsinoe.* **arsinoe** *Fldr.*, from Colombia, differs in the larger and snow-white scent-scale-area on the hindwing; the inner margin of the forewing is red-brown and between submedian and median there is a small black stripe in the red-brown. — 720 *astynomides* In **astynomides** *Stgr. i. l.*, from Venezuela, this black stripe is absent and the inner

margin itself is very narrowly brown-red and the hindwing only differs from that of *arsinoe* by the red-brown
inner margin. — **arsinoides** *Stgr.*, from Chiriqui, has the hindwing as in *astynomides*, but the yellow spots *arsinoides.* 721
of the central row are smaller and widely separated and the inner margin of the forewing is broadly black.
— **praxinoe** *Dbl.*, from Mexico, differs from *arsinoides* in that the white scent-scale-area of the hindwing throws *praxinoe.* 722
out some teeth into the black distal margin and the colour of the red-brown markings is lighter. — **discrepans** *discrepans.* 723
Btlr. (30 c), from Colombia and Ecuador, has only very small yellow spots instead of the yellow median band.
— **meridionalis** *form. nov.*, from Bolivia, has only two yellow subapical spots on the forewing and a yellow *meridionalis* 724
median band, interrupted in the middle but broad, which does not touch the reduced red-brown markings.
— **amphithea** *Fldr.*, from Mexico, is larger than *amphione* and has larger and broader, more falcate forewing. *amphithea.* 725
Unknown to me, probably not different from *praxinoe.* — **egaena** *Bates*, from Ega, is in the female very dark *egaena.* 726
red-brown, has much yellow central and subapical marking and is very similar to *Mechanitis polymnia egaensis*
Bates. — **rhomboidea** *Btlr.*, from Nanta (probably East Peru) (or Nauta, Upper Amazon?), is the largest *rhomboidea* 727
form. In it the yellow subapical spots are entirely absent, the red-brown markings are much developed and
in the posterior part of the forewing reach the distal margin, the yellow median band is only represented
by some small spots at the costal margin. The ♀ has red-brown hindwing with black wedge-shaped marginal
spots, the yellow median band is very broad and almost reaches the inner angle. Is perhaps a separate species.
Only known to me from the figure.

D. laia ~~*Godt.*~~ Shape and size as *amphione*. Forewing black with 3 red-brown spots: a long one in *laia.* 728
the cell, another at the inner margin, and the third, a small round one, is placed towards the middle of the
wing and sometimes united with the first; in addition the distal half of the wing is distinguished by a band-like spot, divided by the veins. Upper surface of the hindwing broadly glossy white along the costal
margin, then red-brown with black, dentate, rather broad margin. Under surface of the forewing glossy
white, margined with yellow at the apex, the other markings as above, but larger, under surface of the hind-wing brownish with several lighter patches, the apex margined with red, a row of rather large yellow marginal
spots and 2 small spots of the same colour near the distal margin (at the distal angle). Surinam, Cayenne.
Only known to me from the description.

D. astynome *Dalm.* (= polymela *Hbn.*) (30 c), from Brazil (Santa Catharina), is very similar to *amphione*, *astynome.* 729
but most probably a separate species. Instead of a row of yellow subapical spots *astynome* has only one such = paulistana
spot, occasionally with a dot before it, and this is placed nearer to the apex than the row of spots in *amphione.*
The inner margin of the forewing is always broadly black. The under surface is essentially different. — **astyocha** *astyocha.* 730
Hbn., from Rio Grande do Sul and São Paulo, differs in the yellow apical spot of the forewing being placed = ♀ f. donia R
directly at the margin and the under surface being lighter and less marked.

D. dejone *Hew.* (30 c), from Central America, has the forewing black above with white spots, the anterior *dejone.* 731
half of the hindwing (scent-spot) light grey, shiny, posterior part of the hindwing red-brown with black margin.
Under surface of the hindwing grey-brown with a transverse row of yellow spots in the middle and a few
other yellow spots and dots. ♀ unknown to me.

D. sororna *Btlr.* (30 d), from Costa Rica and Chiriqui, is a large species. The ♂ has black forewing *sororna.* 732
with yellowish apical, subapical and central spots, the larger anterior part of the hindwing (scent-spot) is light
grey, with silky gloss, the posterior part is red-brown, margined with black. The ♀ resembles the *Lycorea*-species; it has black forewing with the same rows of spots as the ♂, in addition a red-brown transverse band
on the proximal half of the forewing, the hindwing is red-brown with black distal margin and some small
yellow marginal spots. The under surface resembles the upper. — **hagaresa** *Btlr.*, from Costa Rica, is pro- *hagaresa.* 733
bably nothing more than a less marked form of *sororna* (seasonal form?).

D. cordillera *Fldr.* (30 d), from Colombia and Chiriqui, though specifically separated by Butler from *cordillera.* 734
sororna, appears really to belong to it as a seasonal form. The yellow spots of the forewing are larger, in the ♂
the posterior part of the hindwing is yellow and the ♀ also has lighter markings, hence the hindwing is
almost yellow. The under surface resembles the upper in markings and colouring.

D. orise *Bdv.* (30 e), from Guiana and Bolivia, but probably also occurring elsewhere, is very similar *orise.* 735
to *Thyridia psidii L.* and *confusa Btlr.*, especially in the female. The perfectly transparent wings have black
margin and black median band, which, however, in the ♂ only reaches the middle of the wing on account of
the scent-scale on the anterior half of the hindwing.

D. rhetes *Hew.*, from Colombia, differs from **hewitsoni** *Kirby* (30 e, f), from Ecuador, only in the light *rhetes.* 736 *hewitsoni.* 737
spots on the distal part of the forewing and on the hindwing being white (glassy), not bluish. This species
bears a general resemblance to several of the larger Ithomiids.

D. theonoe *Hew.* (30 e), from Ecuador, is very similar to *Ithomia flora Cr.* It is transparent and has *theonoe.* 738
black margins and markings. — **melanoe** *Bates*, from the Upper Amazon, has broader black margins and bands; *melanoe.* 739
it is regarded by Bates as a mimic of *Ithomia onega Hew.*

D. siloe *Hew.* (30 e), from Colombia, has the posterior half of the hindwing red-brown. It has the general *siloe.* 740
aspect of an Ithomiid, but is not specially like any particular species.

741 *theucharila.* **D. theucharila** *Dbl.* (30f), from Venezuela, also shows a general resemblance to an Ithomiid. The ♀
742 *nella.* has the hindwing entirely brown with black markings and broad yellow basal band to the forewing. — **nella**
Btlr., from Colombia, is not different except that the spots of the middle row are not yellow but transparent
white. nella

743 *lysinoe.* **D. lysinoe** *Hew.* (30d), from the Upper Amazon, is similar to *siloe*, but has in the male only a broad yellow marginal band, which is bordered anteriorly by a black band.

744 *lysinoides.* **D. lysinoides** *Stgr.* (30f), from West Colombia (Cauca Valley), is only known in the female. It is very similar to *lysinoe*, but has on the underside of the hindwing a complete row of white marginal spots.

745 *erythroe.* **D. erythroe** *Bates* (30f), from the Amazons (S. Paulo de Olivença), is rather similar to *Hypoleria aureliana, aureola,* etc. It is rather variable, the red-yellow apical spot being sometimes divided into several spots, sometimes there is also a red-yellow spot near the inner angle. eda Röb. =

746 *batesi.* **D. batesi** *spec. nov.* (= lysinoe var. *Hew.*) (30f), from the Amazons, has not only very much red-yellow marking on the forewing but also a very broad red-yellow band on the hindwing. The transparent parts of the wings are bluish.

747 *leuconoe.* **D. leuconoe** *Bates*, from the Amazon River (S. Paulo de Olivença), has a larger red-yellow subapical
melanoides. spot and yellowish subapical band on the hindwing. The latter is entirely absent in **melanoides** *form. nov.*
(30f, g), from Ecuador (Coca), which also has smaller transparent spots on the forewing and somewhat broader
black distal margin to the hindwing. This species is very similar to *Ithomia ida* and *ilerdina*.

49 *fortunata.* **D. fortunata** *Luc.* (30g), distributed from Mexico to Chiriqui, has a general Ithomiid-habitus, but
Godm. & Salv. = without special resemblance to any particular species. The transparent wings have black margins and bands.
The ♀ has a whitish transparent subapical band, the ♂ in its place some entirely glassy spots. — Whether
750 *ithomiella.* **ithomiella** *form. nov.* (30g), from Ecuador (Balzabamba), is a form of *fortunata* or a separate species I am unable
to judge for want of sufficient material. The ♂ differs from *fortunata*-♂ in that the glassy median spot of the
forewing is broader but shorter and behind it there is another small glassy spot. The ♀ is very different from
fortunata-♀, as may be seen from the figure. Beneath the ♂ has larger white marginal spots, also the ♀ has
complete rows of larger and rounder white marginal spots, whilst the ♀ of *fortunata* has only 3 white dots on
the apex of the forewing.

751 *antherize.* **D. antherize** *Hew.* (29h), from Mexico, is in the male similar to the *fortunata*-♀, it has no light markings
on the distal part of the forewing except a broad white subapical band. On the underside of the hindwing
752 *argochloe.* there is a large white apical spot. — In **argochloe** *Bates*, from Ega, the margins of the white band of the
forewing are sinuous, the hindwing is darker and has a submarginal narrow light band.

753 *avonia.* **D. avonia** *Hew.* (29h), from Ecuador (Quito and Balzabamba), has semitransparent yellow markings,
754 *pallida.* whilst **pallida** *form. nov.* (seasonal form?), from Ecuador (Paramba and Chimbo), has much lighter, glossy markings,
entirely white in the distal part of the wing. The under surface is similar to the upper, but both wings
bear at the distal margin a row of white spots.

756 *pinthaeus.* **D. pinthaeus** *L.* (= eumelia *Cr.*, vocula *Cr.*) (29h), from Guiana, the Amazons, etc., has yellow upper
a Weym. = surface with black markings; in the ♀ there is also a black stripe at the costal margin of the hindwing. The
under surface is similar to the upper, but has small white marginal spots and on the hindwing a red-brown
Röb. *amelina.* submarginal band. The species somewhat resembles the Ithomiid-genus *Aeria Hbn.* — **amelina** *Hopff.* (29h),
from Peru, has narrower black bands and consequently larger yellow areas, also the red-brown marginal band
ela. on the underside of the hindwing is narrower. — **ela** *Hew.*, from Ecuador, has in addition small yellowish
submarginal spots at the inner margin of the hindwing and the submarginal band of the hindwing is yellow
757 instead of red-brown.

ithomia. **D. ithomia** *Hew.* (29h), from Ecuador, is similar to *pinthaeus*, but by the division of the postmedian yellow band 4 yellow spots are formed on the forewing, also the distal margin of both wings has a complete row of white spots.

758 *methymna.* **D. methymna** *Godt.* (30g), from Brazil (Minas Geraës), is above an exact copy of *Heterosais gazoria Godt.* (36d), which flies together with it. Beneath the two species differ in that *methymna* has white marginal spots on both wings and on the hindwing an indistinct red-brown submarginal band.

36. Genus: **Styx** *Stgr.*

As already said, the systematic position of this peculiar genus is altogether uncertain. The idea that *Styx infernalis* might be the ♀ of an Erycinid is however incorrect, since the ♂ of *infernalis* is also known. The external appearance of this insect is Pierid-like, similar to *Davidina alticola*, which is figured in vol. I, pl. 19b. The neuration of the forewing shows no striking differences, on the other hand that of the costal margin of the hindwing is not unlike certain Ithomiids. In the structure of the palpi and legs the genus shows great similarity to the Erycinids.

759 *infernalis.* **S. infernalis** *Stgr.* (30g), from south-eastern Peru (Chanchamayo), is in both sexes transparent grey-black with lighter central part of the wings. Only a few specimens of this species are known, so that it would seem to be very rare or only to occur in a few restricted localities.

Additions and Corrections.

p. 57: read *evonima* instead of *evonina.*

Pieris elodia forma **deserta** *Fruhst.*, from Ecuador, has on the underside the apex to the forewing pale straw-coloured and the same colour on the upper surface of the hindwing. *deserta.* 760

p. 60: *eleusis* belongs to the genus *Leptophobia.* When I worked out the genera *Pieris* and *Leptophobia* I knew *eleusis* only from the description.

p. 62.: **Leptophobia gonzaga** *Fruhst.,* from Ecuador (Papalacta), captured by R. Haensch in the middle of January, is somewhat larger than *eleone*, hindwing more elliptical, ground-colour white, forewing similar to that of *pinara,* the costal more extended brown-green, the anal margin powdered with blackish almost to the middle of the wing. The black distal border of the forewing likewise extending at the hindmargin proximally to the middle of the wing, otherwise almost of the same outline as in *pinara,* especially in the proximal, median incision. At the apex of the cell of the forewing the black band is absent. Hindwing with black diffuse basal area; distal margin yellowish with some black dots at the extremities of the veins. Under surface: forewing whitish; distal border, as far as the black margin of the upperside shows through, suffused with dull yellowish. Hindwing yellowish white, slightly glossy, with small black triangular spot at the end of the cell and yellowish basal area. ♀, upper surface: forewing broadly margined all round with brown-black, so that the white ground-colour is reduced to a mushroom-shaped discal patch. Hindwing yellowish, costal and anal region defined by a thin black line; the central area bearing 2 black dots. Under surface as in the ♂. Fringes in both sexes yellowish. Only known to me from the description. *gonzaga.* √ 7

Lept. eleusis **mollitica** *Fruhst.*, from Peru (Huancabamba), has a more pointed forewing and rounder hindwing than *helena.* Upper surface purer white, in the wet-season form distinctly more broadly margined with black than in *helena.* Costal part of the forewing darker, more yellow instead of white. The dry-season form appears to have a narrower border than the dry-season form of *helena,* but of a deeper black. *mollitica.* 762

p. 64: *Perrh. pyrrha* **alethina** *Btlr.,* from Costa Rica, is in the female similar to the *malenka*-♀; the subapical spots are absent. the spots of the median band are sharply yellow, the black spots of the anterior band larger and distinct, the black median band of the hindwing is absent. — Aberration? *alethina.* 763

p. 65: read *antodyca* instead of *autodyca.*

p. 67: *Archon. nigripennis* has a black forewing and a small red spot on the hindwing; *hades Fruhst.* appears to be synonymous with it. — In *rosacea* the three white spots on the forewing are small and well separated, the hindwing has two deep rose-red oval spots. — *approximata* has the rose-red spot on the hindwing nearer to the distal margin, it is broader, uniform in colour, and divided by three veins. The yellow spot on the under surface is much smaller. Found in the Polochic Valley.

p. 68: **Appias peregrina** *form. nov.* (26 c), from Cuba, I consider a form of *janeira Bönningh.* The latter I formerly regarded as an aberrant form of *drusilla* because the author said nothing about the very different shape. It is not necessary here to describe the shape, as it can be seen from the figure. I have before me two ♂♂ of *peregrina;* in these the upper surface is not glossy white, but strongly yellow, particularly on the hindwing, the proximal part of the costal margin ot the forewing is more strongly blackened than in *drusilla* and the black border of the forewing is not extended to the inner angle, but scarcely to the 1. median vein. On the underside the basal half of the cell of the forewing is yellow and the hindwing has a subanal yellowish stripe from the base to the distal margin. — The existence of two American species of *Appias* is consequently established. *peregrina.* 764

p. 71: read *teutamis* (= epimene *Hew.*) instead of *teutanis.* The ♀ is black above and has on the forewing a broad red median band, which gives it a resemblance to the red-banded species of *Heliconius* Instead of *troezene Fldr.* read **affinis** *Röb. spec nov.* (22 d). — *Catasticta* **troezene** *Fldr.*, from Colombia, is above yellow, similar to *eximia* (22 g), but the wings are smooth-margined, the yellow median markings are broader and more narrowed anteriorly, in the cell is a comma-shaped yellow spot, hindwing with much broader and not dentate black marginal markings. Under surface similar to *tomyris,* but the white central markings of the forewing are twice as broad and the dark central markings of the hindwing much broader and pointed distally at the veins. *affinis.* 765 *troezene.* 766

p. 72: **Catasticta incerta** *Dogn.*, from Ecuador (Loja), is not really identical with *manco*; it is, if not a separate species. at least a good local form of *manco.* The upper surface is yellower, has much less black marking and large white marginal spots. The ground-colour of the underside of the forewing is much yellower, instead of the small grey triangular marginal spots in *manco* there are round resp. square yellow spots in *incerta*, the hindwing has more black marking and deeper yellow spots. *incerta.* 767

p. 74: **Catasticta poujadei** *Dogn.*, from Ecuador (Loja), is very similar to *clara* (22 g), but smaller, the uppper surface of the hindwing is almost the same, but the forewing has larger yellow spots, some of which *poujadei.* 768

are crescent-shaped, and the white, streak-like apical spots are absent, the black distal margin is narrower. In the shape of the wings it agrees more with *eximia* (22 g).

769 *jaliscana.* p. 78: In **Hesperocharis jaliscana** *Schaus,* from Mexico (Guadalajara), the ♂ is white, the ♀ lemon-coloured, both with black apical and distal-marginal markings as far as the third median vein. Hindwing beneath of a beautiful yellow with a red spot at the base, a black spot behind the cell and a row of smoky grey angular spots at the costal margin and apex. Similar to *Hesp. crocea.*

770 *graphites.* **Hesperocharis graphites** *Bates,* from Guatemala, is large, yellow with black marginal markings and less sharply black submarginal ones, black median spot on the forewing; under surface with much broken black markings and ochre-yellow cell on the forewing.

771 *paranensis.* **Hesperocharis paranensis** *Schaus,* from Parana (Castro), is white with slight greenish tint, distal half of the costal margin narrowly black, small triangular black spots in the apex and at the distal margin of the forewing. Under surface of the forewing whitish, apex and costal margin yellowish, a black dot at the base, antemedian, median and postmedian irregular and angulated black lines, which are interrupted by the veins, small black spots at the distal margin between the veins. A small species.

772 *crocea.* **Hesperoch.** (?) **crocea** *Bates,* from Costa Rica and Mexico, is above sulphur-yellow in the ♂, deep canary-yellow in the ♀, in both sexes slightly dark marked at the apex of the forewing. The under surface is ochre-yellow with the exception of the lighter posterior part of the forewing and has two blackish spots at the costal margin of the hindwing and a similar spot at the point of origin of the 1. median vein. — Apart from the very different facies, which agrees well with *idiotica Btlr., crocea* also differs somewhat from *Hesperocharis* in neuration, since the upper discocellular of the forewing is absent in the ♂ and very small in the ♀ and the other two discocellulars of the forewing are of very unequal length (lower discocellular longer). It apears to me now, since I have examined specimens which are very probably congeneric with *idiotica,* that the genus *Heliochroma Btlr.* is justified. In shape the species of this genus are very similar to *Daptonoura,* though the hindwing is more elongated at the inner angle, whilst in neuration they more nearly approach *Hesperocharis.*

773 *sinoides.* p. 81: **Terias sinoides** *Capr.,* from Rio de Janeiro (Itaipu), is probably a small form of *phiale.* Upper surface white, slightly yellowish, black distal margin of the forewing shorter and narrower than in *phiale.* Hindwing without markings. Under surface with the exception of the posterior part of the forewing more strongly yellow than the upper, in the middle of the hindwing some small blackish spots.

774 *portoricensis.* **Terias citrina portoricensis** *Dew.,* from Porto Rico, is smaller and lighter than the Cuban form, the violet spots on the under surface are more flesh-coloured.

775 *nigrocincta.* **Terias nigrocincta** *Dogn.,* from Ecuador (Loja), is similar to *plataea,* but has a lighter forewing and the hindwing of the same colour. The black border of the inner margin of the forewing is joined to the border of the distal margin, the orange-yellow stripes at the inner margin are absent. The hindwing has large, proximally pointed, well separated black marginal spots. The yellowish under surface has on the hindwing brownish spots and dark scales.

776 *ribbei.* **Dismorphia ribbei** *Godm. & Salv.,* from Panama, is similar to *fortunata,* but the subapical band of the forewing is divided and there is a small white apical spot. — Is it a separate species?

Alphabetical List

with reference to the original descriptions of the forms of the American Pieridae.

* signifies that the form is also figured in the place cited.

acadica Pier. *Edw.* Pap. I, p. 87.
acraeoides Dism. *Hew.* Trans. Ent. Soc. Lond. (2) 1, p. 99. *
actinotis Catast. *Btlr.* Cist. Ent I, p. 80.
acutipennis Dism. *Btlr.* Entomolog. 1899, p. 26.
aelia Dapt. *Fldr.* Wien. Ent. Mon. V., p. 82.
aequatorialis Pseudop. *Fldr.* Wien. Ent. Mon. V., p. 75.
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anthyale Col. *Hbn.* Zutr. *
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antodyca Per. *Bsd.* Spec. Gén. I, p. 407.
apaturina Catast. *Btlr.* Entomol. 34, p. 302.
aphaia Hesp. *Fruhst.* Soc. Ent. 22, p. 148.
aphrodite Dism. *Fldr.* Novara Lep. II, p. 139.
apicalis Cath. *Fruhst.* Soc. Ent. 22, p. 132.
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arbela Ter. *Hbn.* Zutr. *
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thetis Gon. *Röb.* Seitz Macrol. 5, p. 89.
theucharila Dism. *Dbl.* Ann. Mag. Nat. Hist. (2) 1, p. 123.
theugenis Dism. *Dbl.* Ann. Nat. Hist. (2) 1, p. 124.
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thymetus Ter. *F.* Mant. Ins. II, p. 30.
tiburtia Pier. *Fruhst.* Soc. Ent. 22, p. 139.
timotina Pier. *Fruhst.* Soc. Ent. 22, p. 139.
tithoreides Pier. *Btlr.* Ann. Mag. Nat. Hist. (7) 2, p. 18.
toca Catast. *Dbl.* Ann. Nat. Hist. 19, p. 387.
tomyris Catast. *Fldr.* Novara Lep. II, p. 148. *
tovaria Pier. *Fldr.* Wien. Ent. Mon. V, p. 80.
tricolor Catast. *Btlr.* Ann. Nat. Hist. (6) 20, p. 368.
tricolor Dism. *Sm. & Ky.* Rhopal. exot. II. *
trite Catops. *L.* Mus. Ulr., p. 248.
troezene Catast. *Fldr.* Novara Lep. II, p. 154. *
troezenides Catast. *Röb.* Seitz Macrol. 5, p. 71. *

unicolor Per. *Röb.* Seitz Macrol. 5, p. 66.
uniplaga Arch. *Fruhst.* Stett. Zg. 1907, p. 281.
uricoecheae Catast. *Fldr.* Wien. Ent. Mon. V, p. 78.

valei Pier. *Bsd.* Spec. Gén. I, p. 494.
vapina Catast. *Btlr.* Ann. Mag. Nat. Hist. (6) 20, p. 367.
vautieri Col. *Guér.* Voyage Coqu. *
velia Dapt. *Fruhst.* Soc. Ent. 22, p. 179.
venosa Pier. *Scudd.* Proc. Bost. Nat. Hist. Soc. 8, p. 182.
venusta Ter. *Bsd.* Spec. Gén. I, p. 658.
venustula Ter. *Stgr.* Verh. zool.-bot. Ges. Wien 25, p. 93.
vernalis Pier. *Edw.* Proc. Ent. Soc. Philad. II, p. 501.
viardi Pier. *Bsd.* Spec. Gén. I, p. 439.
virginia Pier. *Godt.* Enc. Méth. IX, p. 141.
virginiensis Pier. *Edw.* Trans. Amer. Ent. Soc. 1870, p. 13.
virgo Catops. *Btlr.* Trans. Ent. Soc. Lond. 1870, p. 9.
virgo Dism. *Bates.* Ent. Month. Mag. I, p. 5.
viridifascia Dism. *Btlr.* Cist. Ent. I, p. 83.
viridula Pseudop. *Fldr.* Wien. Ent. Mon. V, p. 75.
vitellina Ter. *Fldr.* Wien. Ent. Mon. V, p. 86.
vitha Hesp. *Fruhst.* Soc. Ent. 22, p. 154.
volxemi Tat. *Capr.* Ann. Soc. Ent. Belg. 17 (1874), p. 11. *
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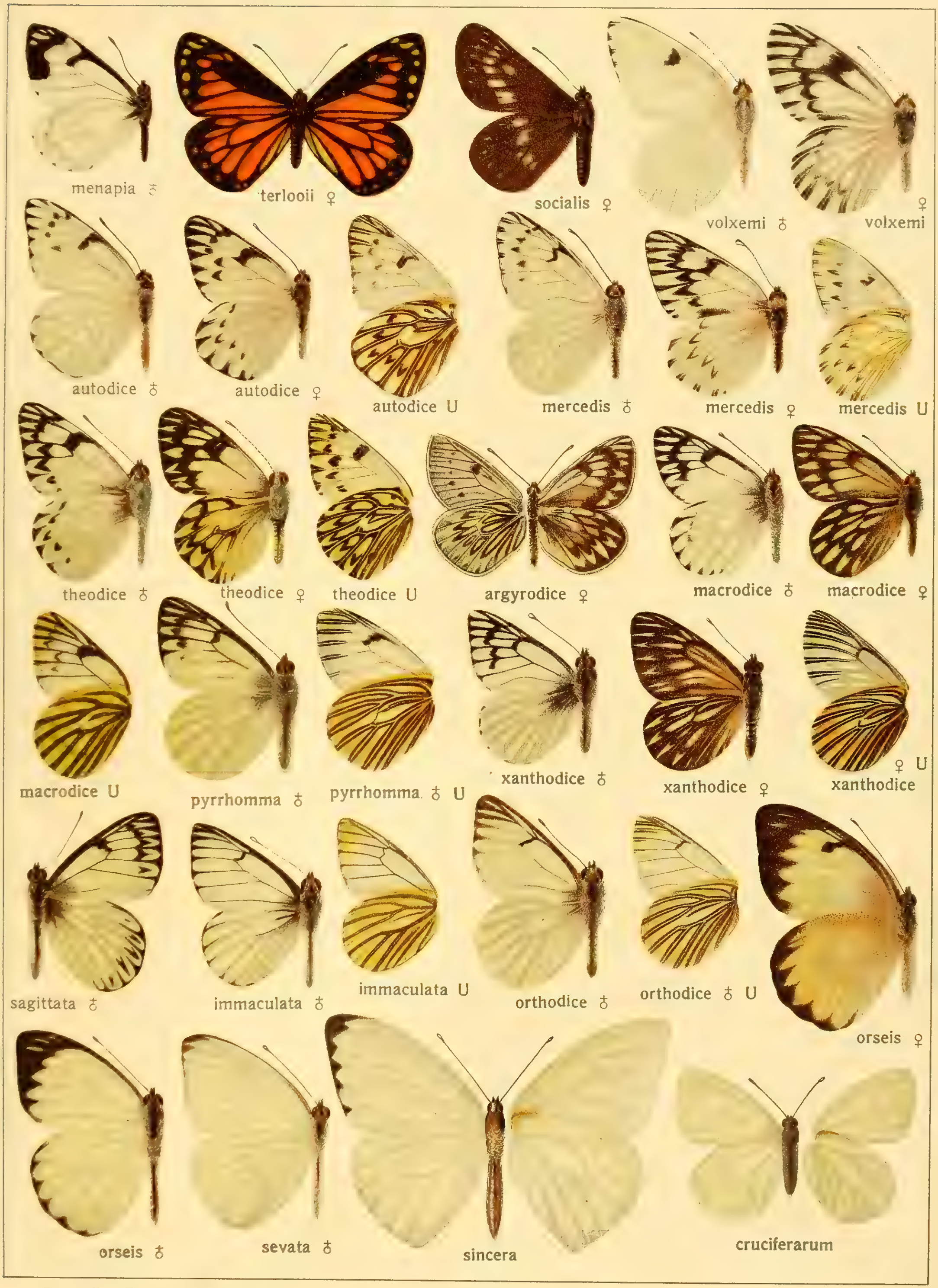
wallacei Catops. *Fldr.* Wien. Ent. Mon. VI, p. 68.
westwoodi Ter. *Bsd.* Spec. Gén. I, p. 666.

xanthochlora Ter. *Koll.* Denkschr. Akad. Wiss. Wien, Math. Nat. Cl. I, p. 363.
xanthodice Tat. *Luc.* Rev. Zool. 1852, p. 337.
xanthomelas P. *Röb.* Seitz Macrol. 5, p. 61.
xanthophila Kric. *Röb.* Seitz Macrol. 5, p. 89.

yolanda Dapt. *Fruhst.* Stett. Zg. 1907, p. 272.

zaela Dism. *Hew.* Exot. Butt. II Lept. *
zathoë Dism. *Hew.* Exot. Butt. II Lept. *
zenobia Leod. *Fldr.* Novara Lep. II, p. 146. *
zenobina Leod. *Hopff.* Stett. Zg. 1869, p. 429.

NEOPHASIA—PIERIS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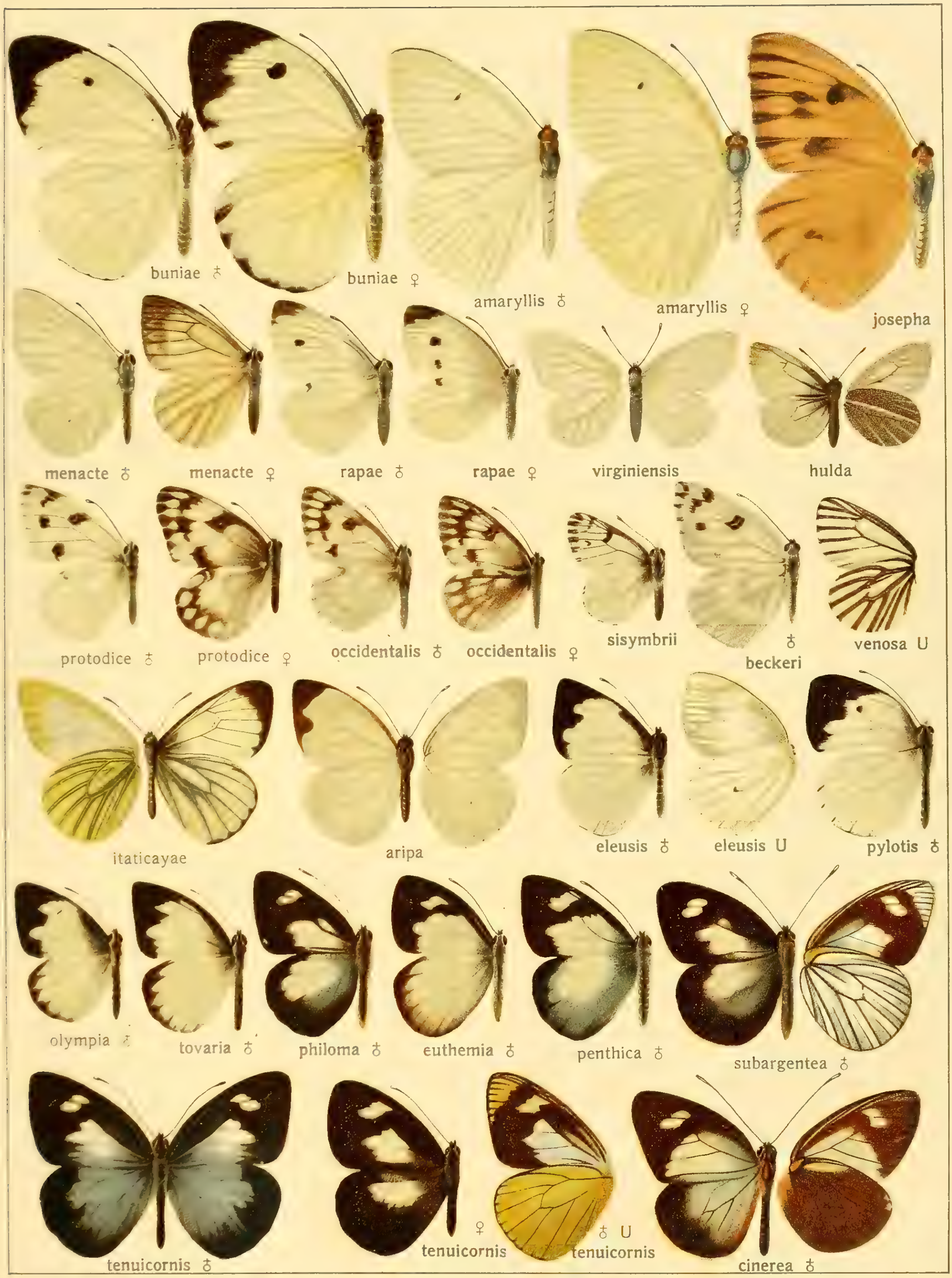
PIERIS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♂
beckeri
venosa U
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itaticayae
aripa
eleusis ♂
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pylotis ♂
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tovaria ♂
philoma ♂
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penthica ♂
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cinerea ♂

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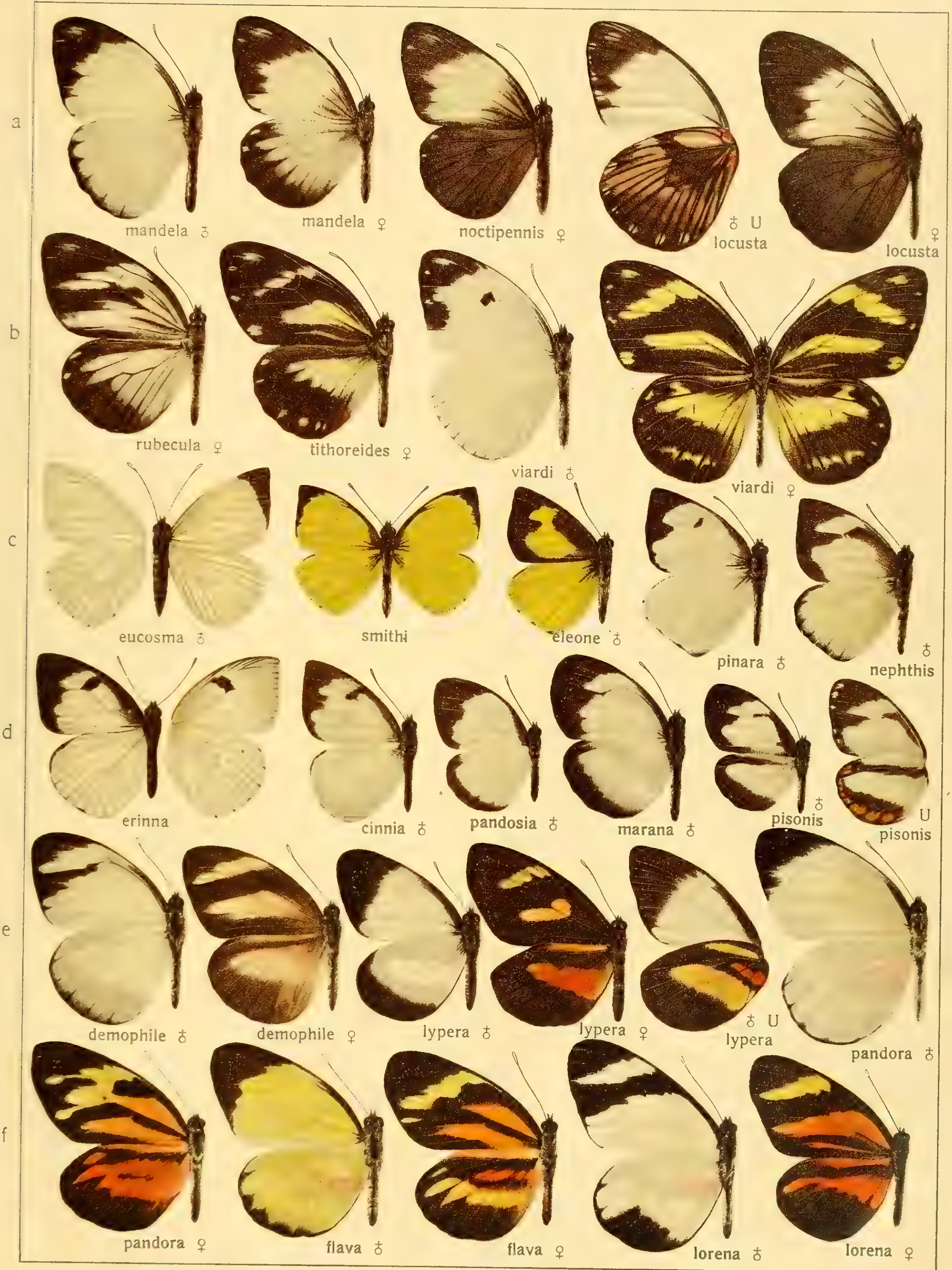
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c
eucosma ♂
smithi
eleone ♂
pinara ♂
♂ nephthis
d
erinna
cinnia ♂
pandosia ♂
marana ♂
♂ pisonis
U pisonis
e
demophile ♂
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lypera ♂
lypera ♀
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lorena ♀

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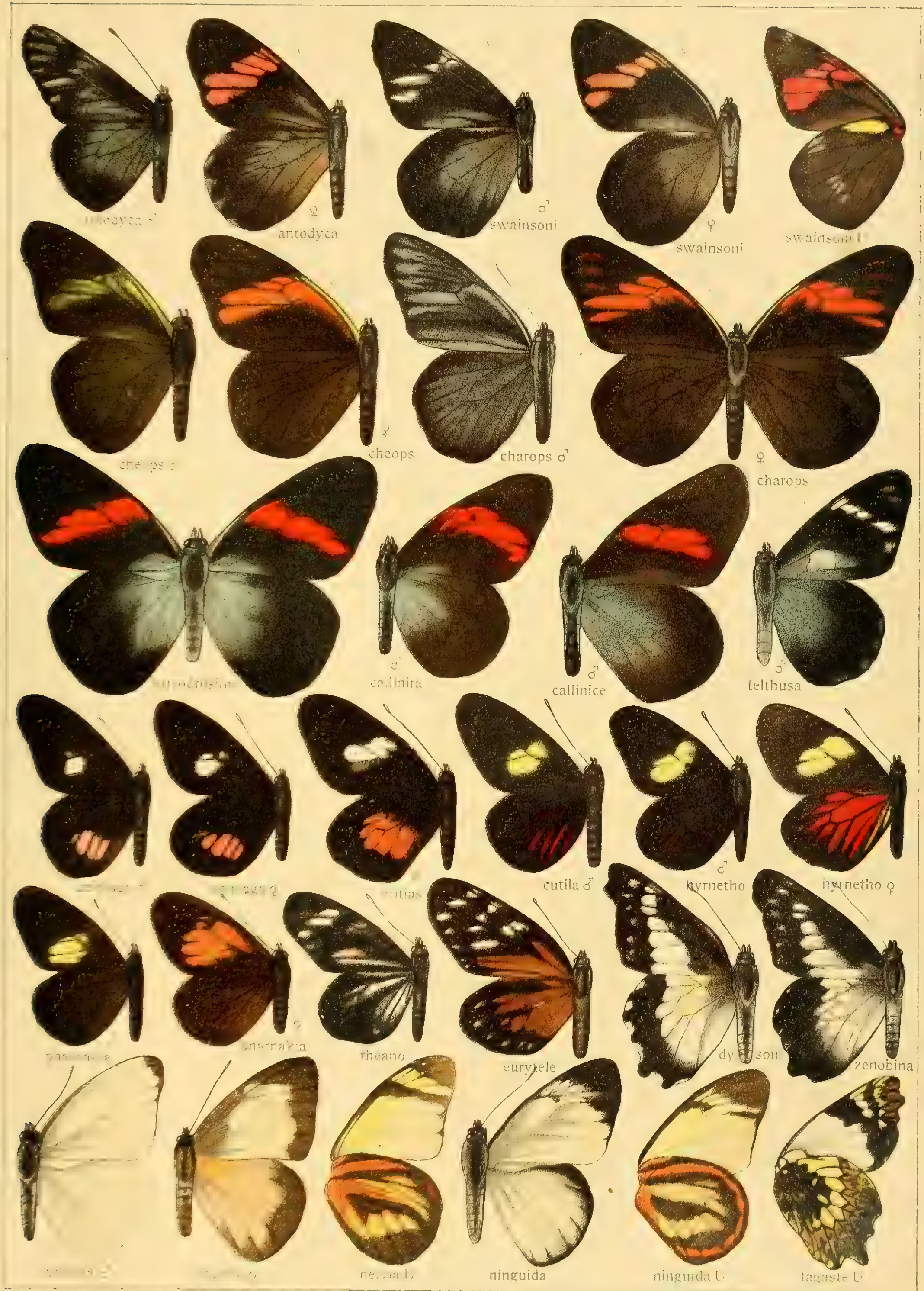
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c
leucodrosime
♂ callinira
♂ callinice
♂ telthusa
d
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critias
cutila ♂
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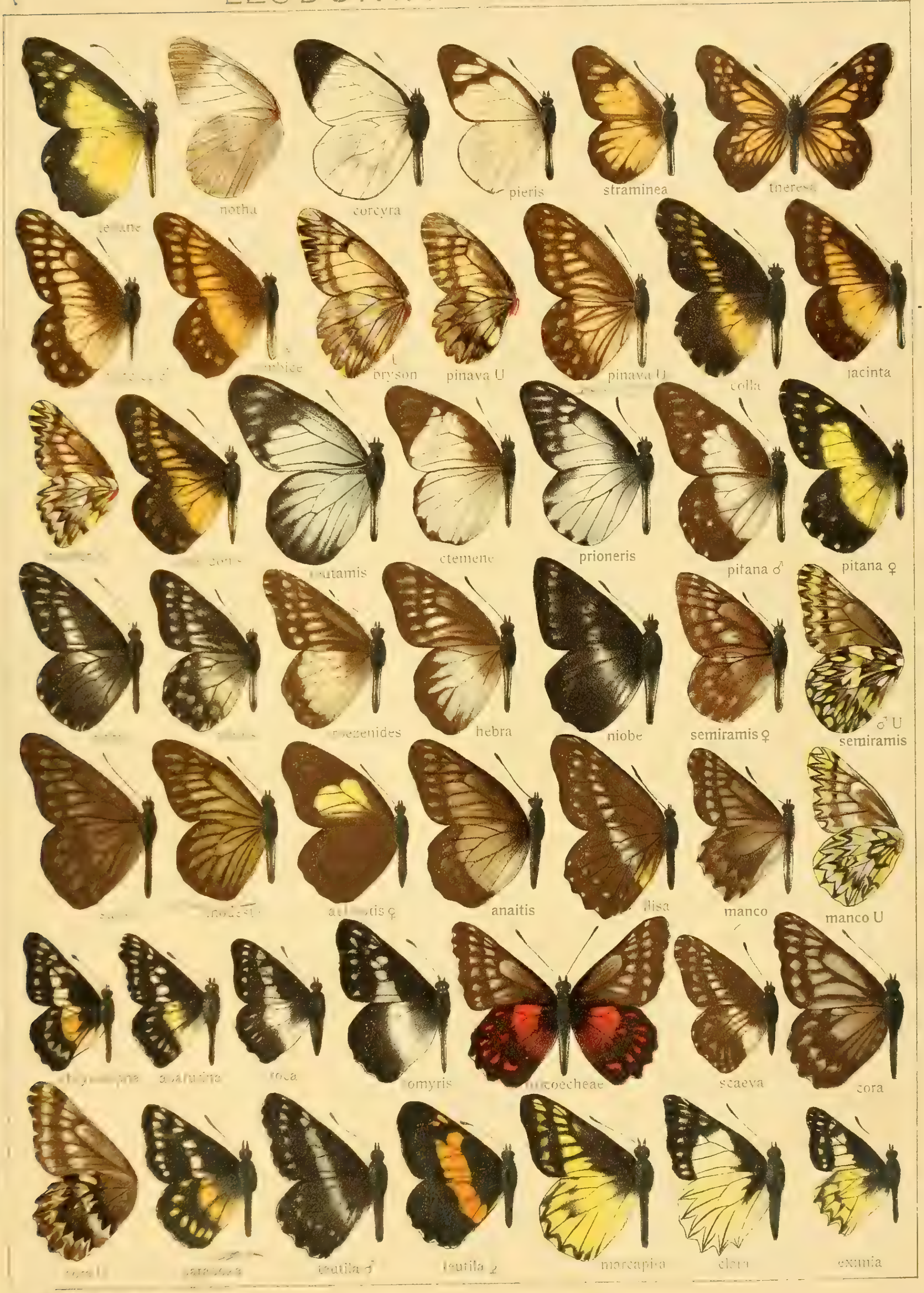
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prioneris
pitana ♂
pitana ♀
d
hebra
niobe
semiramis ♀
♂ U
semiramis
e
anaitis
manco
manco U
f
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scaeva
cora
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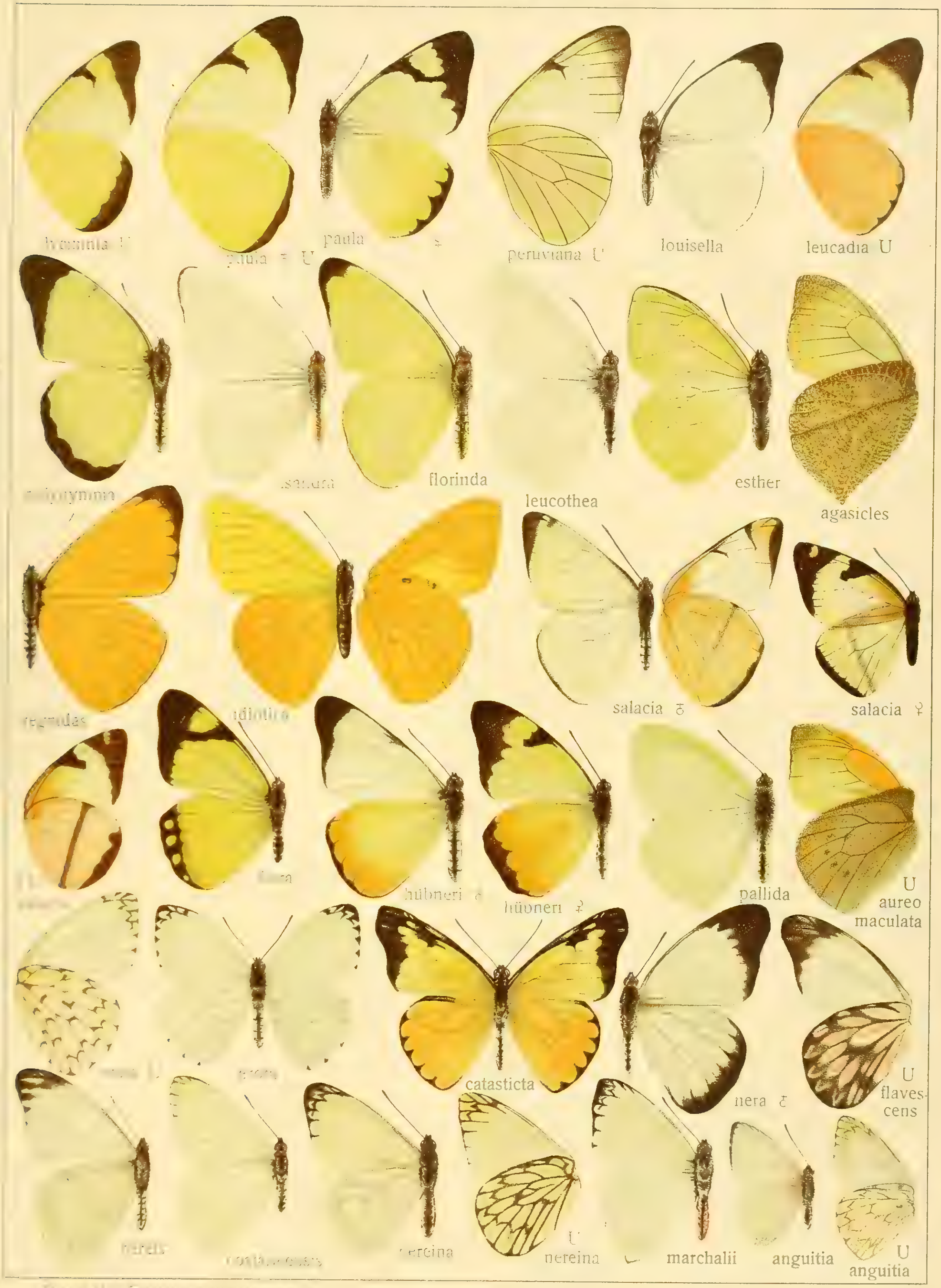
eximia

DAPTONOURA-HESPEROCHARIS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agasicles
c
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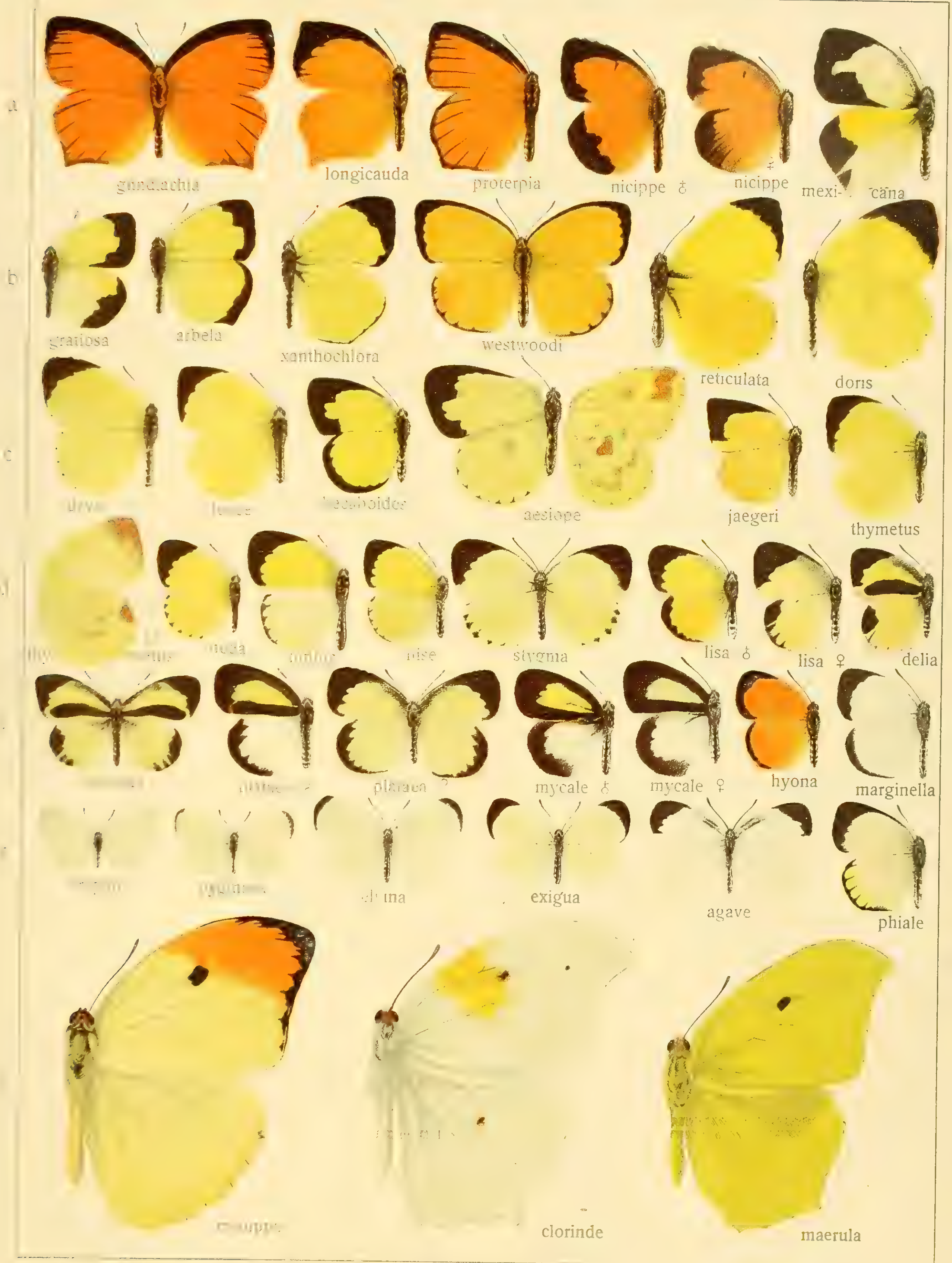
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reticulata
doris
c
leuce
hecaboides
aesiope
jaegeri
thymetus
d
nise
stygma
lisa ♂
lisa ♀
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phiale
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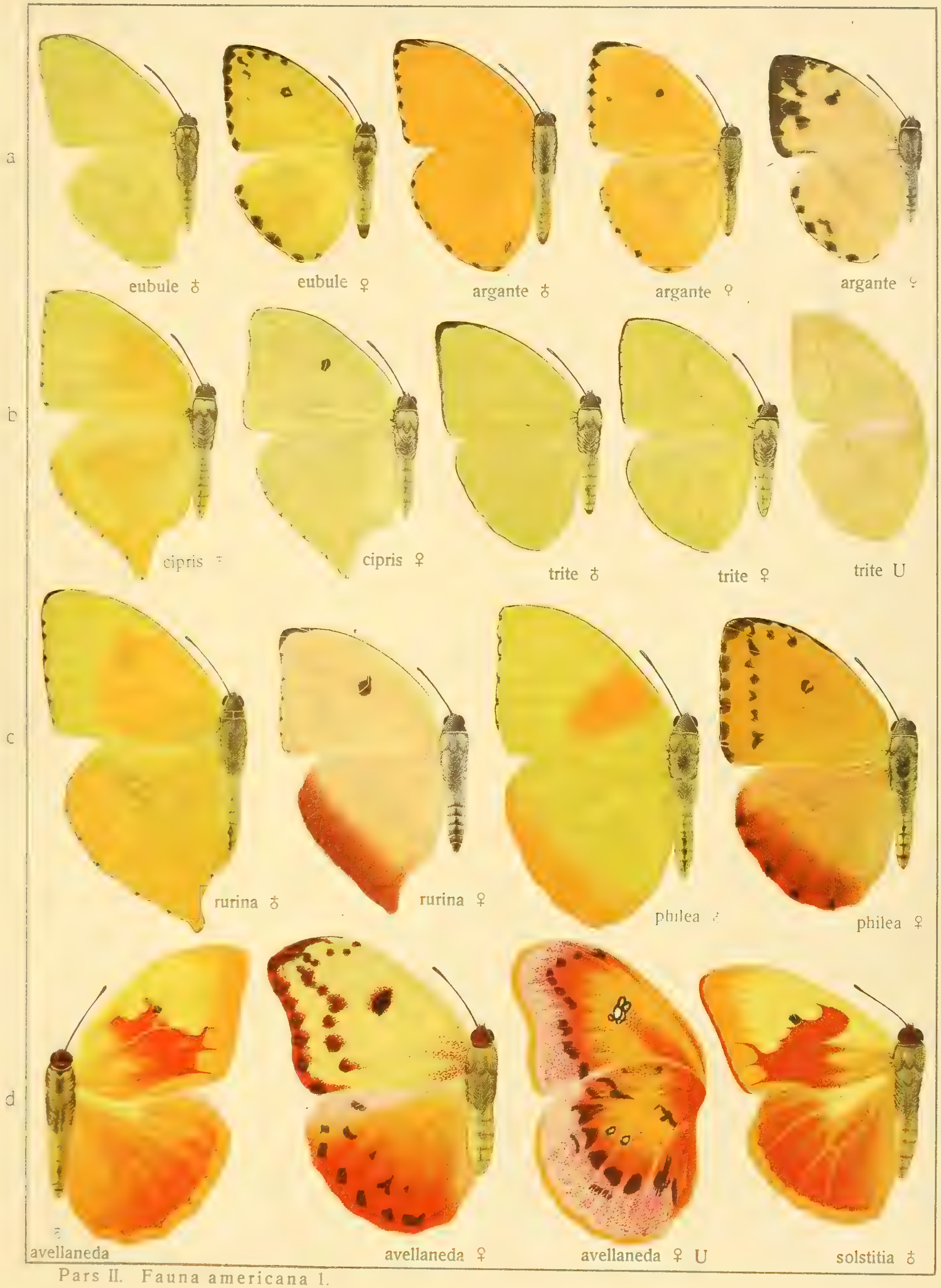
maerula

CATOPSILIA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trite U
c
rurina ♂
rurina ♀
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d
♂
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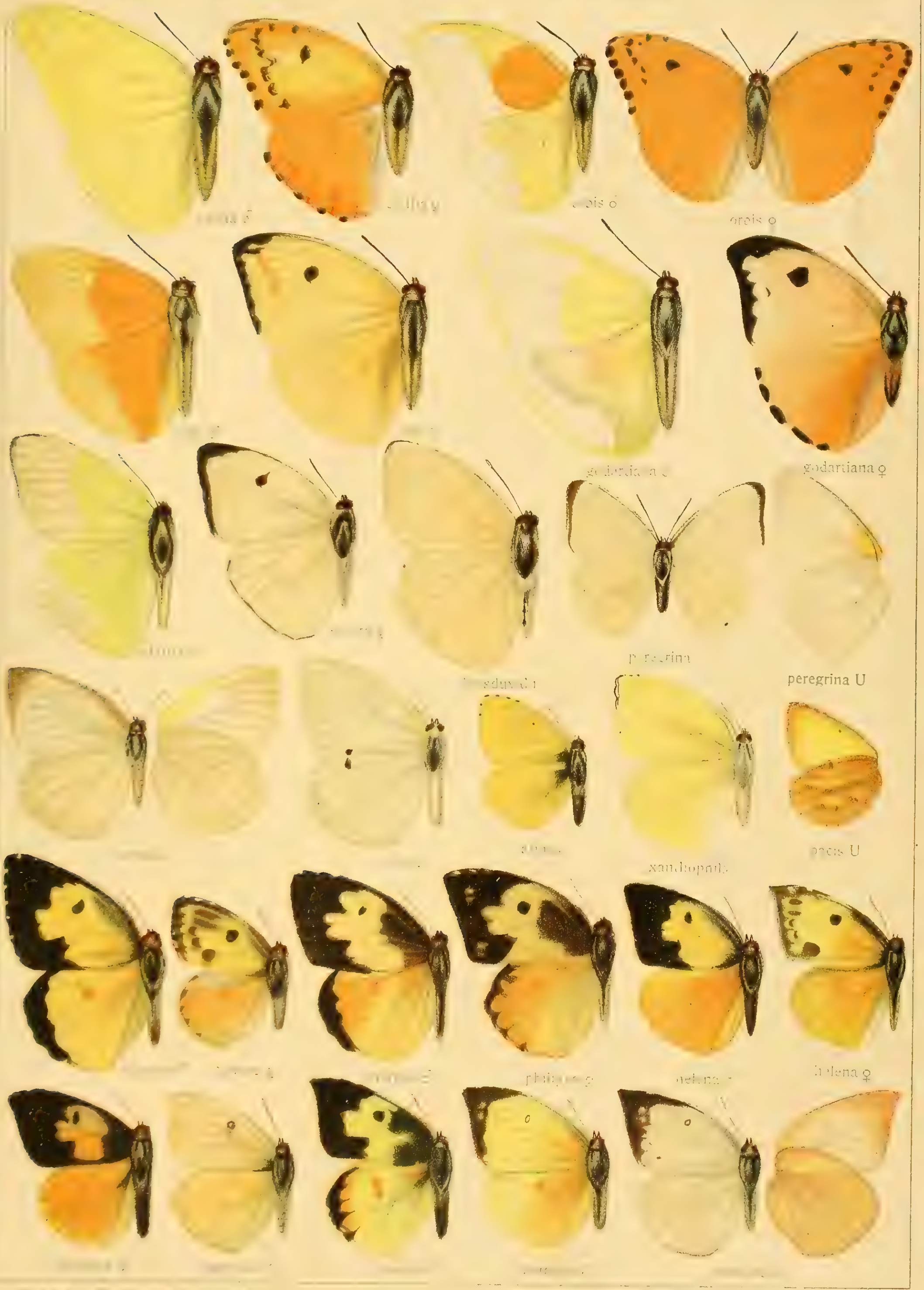
avellaneda ♀ U
solstitia ♂

CATOPSILIA-MEGANOSTOMA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xanthophila
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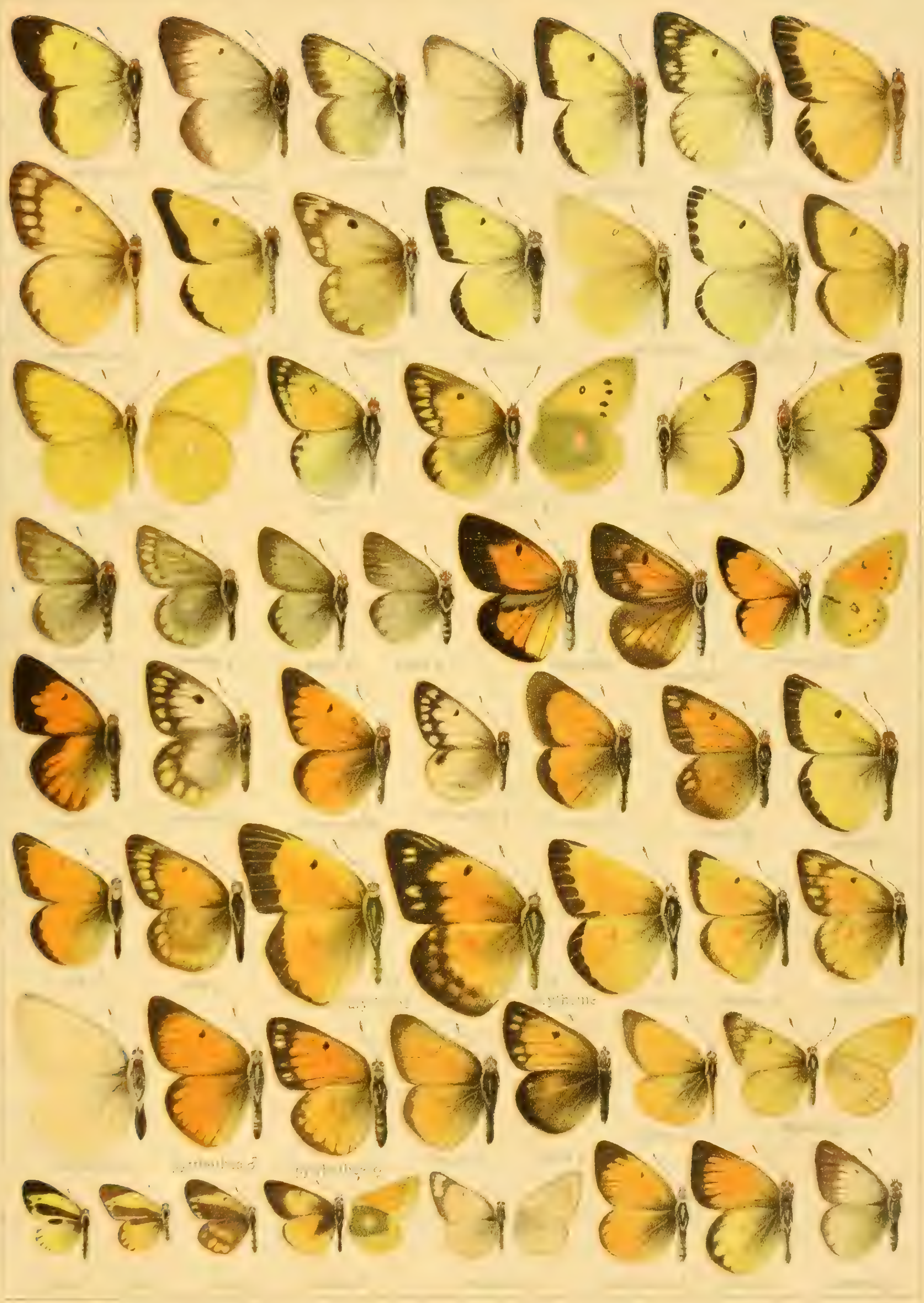

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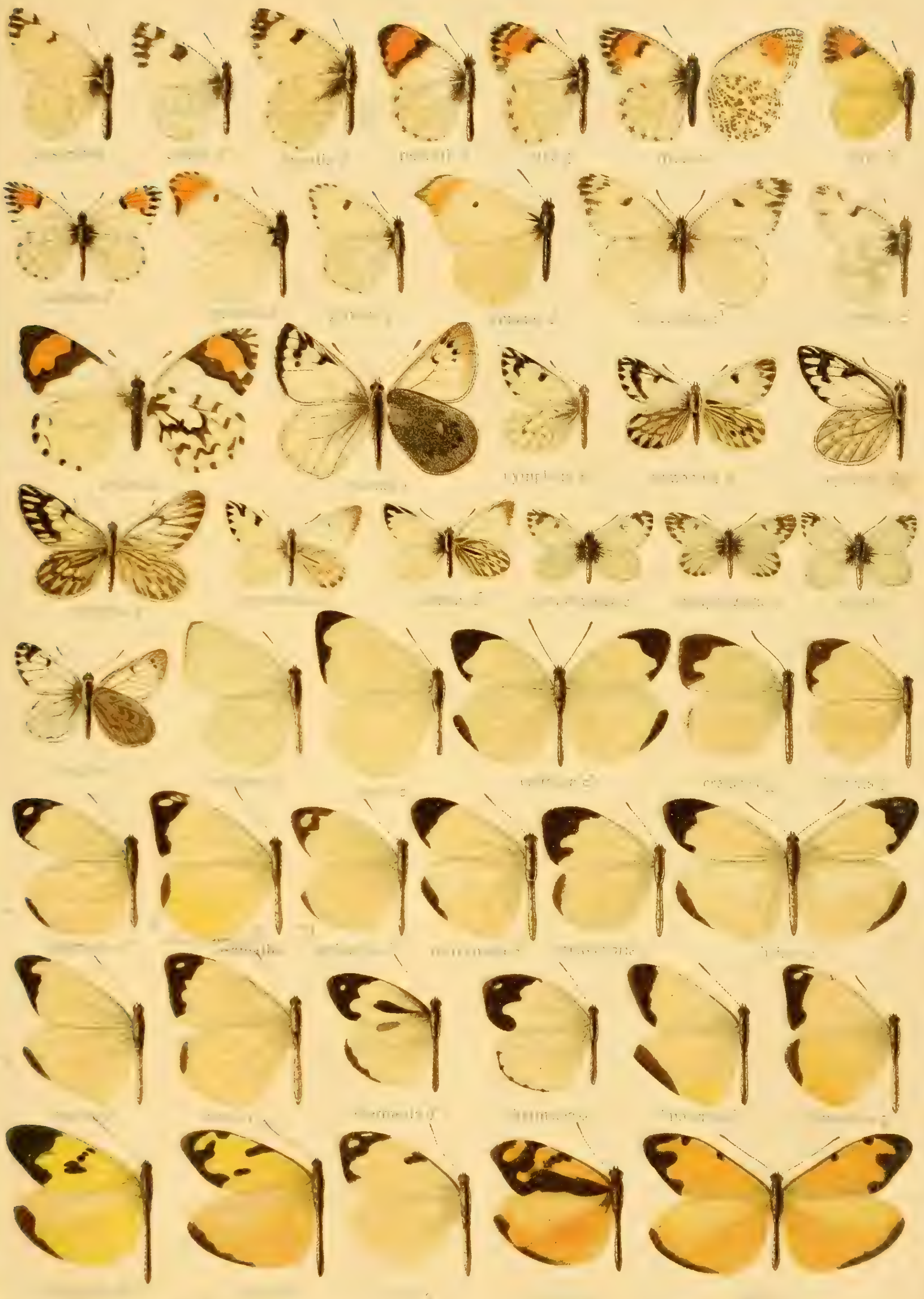

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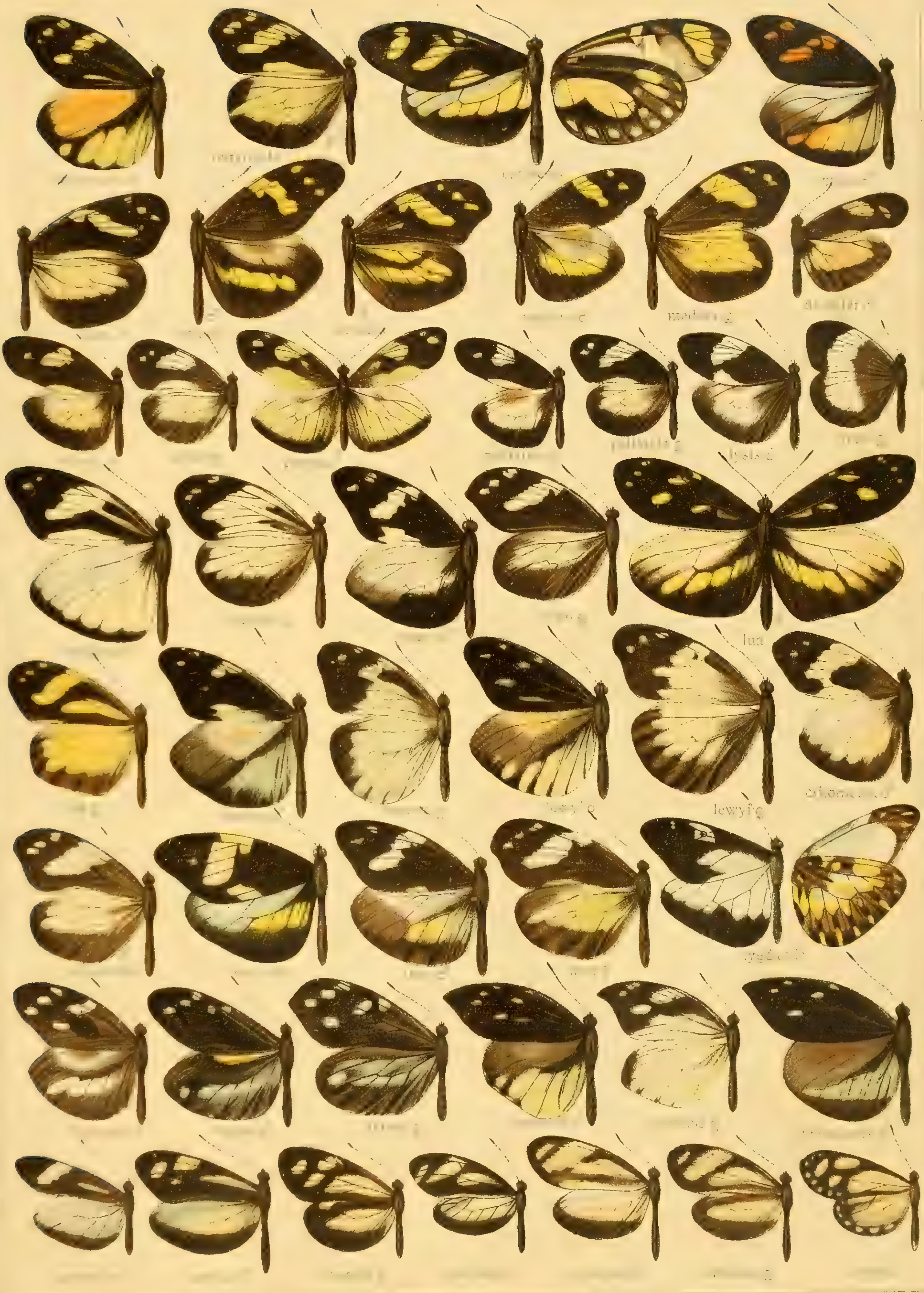
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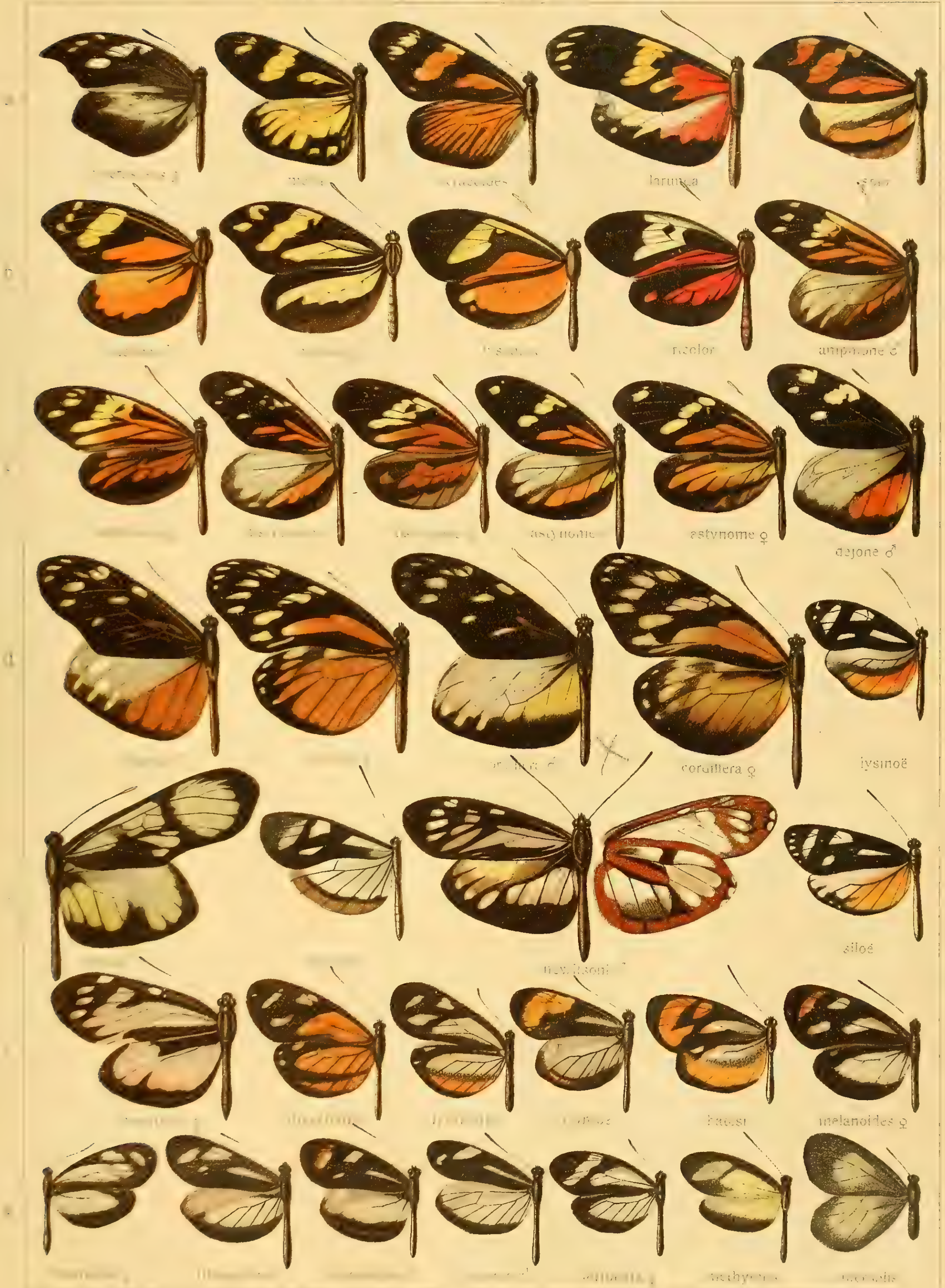
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dejone ♂
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cordillera ♀
lysinoë
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hewitsoni ♂
siloë
f
melanoides ♀
g

3. Family: **Danaidae.**

Particulars as to the characters of this family are given in the Palaearctic part of this work (vol. I, p. 75). The Danaids are distinguished from the Pierids especially by the aborted forelegs; from the Heliconines, Nymphalids and Satyrids by the basally bifurcate submedian of the forewing. The antennae are thin, without distinct club. Cell of the hindwing long and closed. In America the true Danaids are only represented by a few species of the genus *Danais,* which belong to the subgroup *Anosia* and are mostly met with in a large number of individuals in wooded country (especially in North America). In South America on the contrary an externally very different subfamily, the *Ithomiinae,* is developed in numerous genera and hundreds of species, which are commonest at the tributaries of the Upper Amazon, in the valleys of the Andes, but occur singly as far as Argentina and North America. A third small group, the *Lycoreinae,* forms the transition between the two beforementioned subfamilies and combines characters of both. Its representatives are most numerous in the central part of America.

1. Subfamily: **Danainae.**

Wings broad, abdomen short. The scent-organ of the ♂♂ consists of scale-like structures or pouches on the hindwing. The forelegs of the ♀♀ are short, clubbed at the end.

1. Genus: **Danais** *Latr.*

Powerful, mostly yellow-brown butterflies with dark margins and whitish dots. They have a long-sustained flight and are fond of the open country, accompanying cultivation further and further into the primeval forests as soon as a few clearings have been formed where the foodplants of the larvae, species of Asclepias, can get a foothold. The larvae are bright-coloured, with transverse stripes, and provided with soft appendages. Pupae bell-shaped, with gold ridges or dots.

A. **Archippus Group.**

Larvae with 2 pairs of fleshy appendages. Cell of the hindwing long. ♂ with moderately small scent-spot.

D. archippus *F.* (= plexippus *L.*) (vol. I, pl. 28c). Body black-brown, hairy, with whitish dots and streaks. Wings above brown-yellow with dark veins and margins; at the distal margin a double row of small whitish spots. Above the end of the cell of the forewing a black-brown patch with several brownish whitish spots. On the under surface the hindwing is yellowish, the veins with broader edges and the white marginal spots larger. — From Nicaragua southwards occurs a local race which I call **nigrippus** *form. nov.* In this the whole apex of the forewing as far as the end of the cell is black-brown and the spots are pure white. This form especially is found also in the north of South America. — Hulst designates as **fumosus** a form of *archippus* with dark black-brown ground-colour. — Larva yellowish with black transverse stripes and has on the 3. and on the 11. segment 1 pair of fleshy appendages. It lives on Asclepias curassavica and requires about 3 weeks for its development. It is protected by its pungent, nauseous smell. Pupa light green, transparent, with golden dots. In North America *archippus* has as many as four broods. The butterflies of the first appear at the end of May. Sometimes they occur in large swarms. In America the species is found from Canada to Paraguay. The typical northern form, however, extends southwards only to Central America. *archippus.* *nigrippus.* *fumosus.*

D. erippus *Cr.* (31a) is very nearly allied to *archippus,* but always differs from it by the absence of the black-brown inner margin of the forewing. Moreover the veins on the under surface of the hindwing are broadly margined with white. Larva yellowish with black head and transverse stripes. On the 2. and 11. segments 2 appendages each; the anterior ones are used as antennae. Pupa berry-shaped, thickest at segment 6, transparent white-green with shiny gold dots. The habitat of *erippus* is Brazil from whence it has spread southwards to Patagonia (Berg) and northwards to Central America and the West Indian islands. *erippus.*

D. cleophile *Godt.* The smallest American species; it differs from all the other forms in having the marginal and apical spots yellowish instead of white. The apex of the forewing is broadly black. This rare and beautiful species occurs only on the West Indian islands, particularly Haiti, Cuba and Jamaica. *cleophile.*

B. **Gilippus Group.**

Larvae with 3 pairs of fleshy appendages. Cell of the hindwing short. ♂ with moderately large scent-spot.

D. gilippus *Cr.* (= vincetoxici *Hbn.*, manuja *Ersch.*) (31a). Similar to *erippus,* but smaller and without the black transverse band in the apex of the forewing. Between the median veins of the forewing inside the black margin 4 additional larger, white spots. Further a number of white spots are placed at the end of the cell of the hindwing. Veins in the disc of the hindwing beneath only narrowly edged with white. Abdomen brownish. South America, especially at the coast near Rio de Janeiro, but also in Bolivia. — **nivosus** *Godm.* *gilippus.* *nivosus.*

& Salv. (= hermippus *Druce*), a form of *gilippus*, has much paler ground-colour and very large white spots: especially at the apex of the cell of the hindwing; it inhabits northern Peru.

plexaure. **D. plexaure** *Godt.* This small species is very similar to *gilippus;* but the inner row of white spots, between the median veins of the forewing, is always larger, especially on the under surface. Moreover *plexaure* has on the hindwing another row of white spots between the black distal margin and the apex of the cell. Further the under surface of the hindwing in *plexaure* is always grey-brown, different from that of the forewing, whilst in *gilippus* it is red-brown; *plexaure* occurs in southern Brazil and in Argentina. Larva on Asclepias curassavica; very similar to that of *erippus*, but with another pair of false thorns on segment 5. The markings also similar to those of *erippus*; the black is so much extended that the light ground-colour is almost entirely suppressed except for 2 vivid yellow transverse bands. False thorns black, bright red at the base. Pupa likewise similar to that of *erippus*.

berenice. **D. berenice** *Cr.* (= erippus *F.*, gilippus *Smith*) (31a) is the same size as *gilippus*. Dark brown, the veins little prominent. The white spots of the forewing are small; on the under surface of the hindwing they are almost entirely absent. Veins on the underside of the hindwing more broadly margined with white on the disc. The double row of small white marginal spots is usually incomplete. From the south of the United States and *strigosa.* the West Indies to South Brazil. Bates describes as **strigosa** a form from Guatemala of somewhat lighter colouring, in which the veins, especially on the upperside of the hindwing, are dusted with grey. This form also *thersippus.* occurs in Mexico and Texas. — ab. **thersippus** *Bat.*, from Panama, is according to Godman and Salvin an un- *hermippus.* usual form of *berenice*. It has dull, dark reddish brown ground-colour and dark brown distal margins. — **hermippus** *Fldr.* (31a) approaches *berenice*, but is easy to recognise by the strikingly light, grey-brown colour and strongly grey-white dusting in the disc. It has also particularly large white spots on the forewing. It inhabits Colombia. — Larva of *berenice* on Asclepias curassavica and amplexicaulis. It is whitish violet with red-brown transverse stripes and violet incisions, as well as a yellow lateral line. On segment 2, 5 and 11 is placed 1 pair of appendages. Pupa greenish with black-yellow transverse line on the venter and golden dots. It is more elongate than in *archippus* without the sharp ventral ridge. The butterflies appear in June. They fly in large numbers in sunny places up to a height of 6000 ft.

jamaicensis. **D. jamaicensis** *Bat.* Markings as in *berenice*. Colouring pale yellow-brown with brown margins. The veins of the hindwing margined with grey as in *strigosa*. Smaller than *berenice*. It was once brought in large numbers from Jamaica. Larva with transverse black and white stripes, dorsally with a short yellow band on each segment and yellow spots at the ends of the white stripes above the legs. On segment 5, 6 and 11 is placed 1 pair of red appendages, the first pair the longest. The pupa is light green with very small black dots and golden spots.

eresimus. **D. eresimus** *Cr.* (31b). Differs from all the preceding in the relatively small cell of the hindwing, as well as in the absence of the black and white margins on the underside of the hindwing. On the other hand it has here near the dark brown distal margin a lighter broad band and between this and the apex of the cell a second, undulate band, joined to the first at the ends. The colour of the upper surface is brownish, at the base of both wings darker and at the distal margin black-brown. The black-brown costal margin of the forewing is widened behind the apex of the cell into a triangle, the apex of which touches the opposite distal margin, as in *erippus;* the white marginal and apical spots are likewise present. The abdomen is the same colour as the wings. Cramer described the species from Surinam; but it also occurs in other parts of northern South America; thus in Colombia, Peru and on the Amazons, though nowhere very common. Is fond of visiting *xanthippus.* the banks of rivers. — **xanthippus** *Fldr.*, from Brazil, is said to be most nearly allied to the preceding and to differ from it by lighter colouring, whilst the blackish distal margin of the hindwing is broader and the light spots *erginus.* on its under surface are absent. — **erginus** *Godm. & Salv.* This form is likewise said to approach *eresimus* and to be distinguished from it by the darker colour of the wings and more distinct white spots. The apex of the forewing is almost black and the disc of the hindwing appreciably lighter. The habitat is northern Peru.

cleothera. **D. cleothera** *Godt.* (31b). Very nearly allied to *eresimus*, but differs especially in the under surface of the hindwing, the blackish veins of which, as in most other species, are margined with white. On the other hand *cleothera* has also the two lighter bands there as in *eresimus*, and indeed the inner one is still darker and therefore more distinct. The black costal margin is only widened as far as to the discocellular. The hindwing has mostly a double row of white marginal spots on the upper surface. Godart gives (erroneously) the island of Timor as locality of *cleothera;* it occurs in Mexico, Central America and on the Antilles; according to Doubleday also in Venezuela.

2. Subfamily; **Lycoreïnae.**

Wings elongate. Abdomen extending beyond the anal angle of the hindwing; posteriorly thickened like a club. Antennae reaching to the end of the cell. Claws with appendages. ♂ with 2 retractile tufts of hair at the extremity of the abdomen. The species of the two genera which belong here are confined to the

Neotropical region. They occur in open localities in the primeval forest. Their flight is irregular. The larvae are similar to those of the *Danainae;* they are said to live on Solaneae.

2. Genus: **Lycorea** *Dbl. & Hew.*

Large, stately, bright-coloured butterflies, mostly of yellow-brown ground-colour, with blackish margins and streaks, as well as yellowish bands and spots and also white marginal dots. The species have all the same scheme of markings, which is also repeated in many genera of the *Ithomiinae,* and of which I will therefore here give a general description, afterwards referring to it for short as „*Lycorea*-habitus". The figure of *Lycorea halia Hbn.* on pl. 31c may serve as an example. The ground-colour is mostly a peculiar reddish yellow-brown. The apical half of the forewing is black-brown with an oblique band formed of yellow spots, which crosses the apex of the cell, and with one or several yellow subapical spots. From the black-brown apical part 3 streak-like projections run towards the base: one along the median, the others along the costal and hindmargin. On the disc of the hindwing there is an oblong, band-like, blackish loop, open towards the base, from the costal margin towards the apex and then back to the inner margin. The oblong space enclosed by this loop is often yellow in a number of species from certain districts. The distal margin of the hindwing is black-brown and mostly has above and beneath a row of white submarginal dots. This scheme of colouring can be recognised again in most Lycoreas and many Ithomiids, though the pattern is often somewhat altered, the yellow being replaced by brown or the black sometimes covering almost the whole hindwing.

The Lycoreas are feeble fliers, prefer the edges of the roads and open places and are fond of visiting flowering shrubs, where, as they hang on the flowers, they can scarcely be distinguished from the similar *Melinaea* and *Mechanitis.*

Unfortunately very little is yet known as to the larvae. Boisduval mentions that they have flexible fleshy appendages, which are arranged in pairs on some of the segments, also that they are similar to those of the true Danaids and likewise live on Asclepiadeae. According to Guppy some at least of them are similar to those of *Tithorea,* with only 1 pair of appendages on segment 2 and live also on cacao and on a plant similar to caoutchouc.

L. eva *F.* Markings as in the figured form *concolor* (31 c), but the forewing has on the discocellular *eva.* the typical yellow oblique band, which at the costal margin encloses a blackish spot. In *eva* and the allied forms the cell of the hindwing is only short, as the lower and middle discocellulars form only a very obtuse angle. This form occurs in the north-east of South America, especially Guiana. — The figured local form **concolor** *Stgr.* *concolor.* (31c) differs from the nymotypical form in the absence of the yellow transverse band on the forewing, which also occurs in many Ithomiids, e. g. *Hirsutis melanina, Melinaea chincha, Ceratinia bicolora, Mechanitis deceptus,* etc. All these forms occur, like *concolor,* on the eastern slopes of the Andes, in Peru and Ecuador. — **pasinuntia** *Cr.* *pasinuntia.* This form is differentiated from *eva* in that the dark distal margin is merged together with the posterior half of the band-loop into a large spot, as in the figure of *ceres.* Is found in the same localities as *eva,* and transitions also occur.

L. ceres *Cr.* (31c) is distinguished from the similar *pasinuntia* by the longer cell of the hindwing. Further *ceres.* the yellow oblique band of the forewing is only half as broad at the costal margin and encloses no black spot there; also the band is not joined to the 4. subapical spot. This form comes chiefly from Guiana. — The variety with typical *Lycorea*-habitus I call **fasciata** *form. nov.* In it the loop and the distal margin of the hindwing are *fasciata.* separated by the yellow-brown ground-colour, as in *eva.* Appears to occur especially in the north-west of South America. — **demeter** *Fldr.* is a dark brown local form from Cuba and Haiti. It has a yellow macular oblique *demeter.* band like *halia* and 3—4 yellow subapical spots. A similar dark form of *fasciata* occurs on the Lower Amazon near Manaos. — The larva of *ceres* is according to Guppy whitish with black head and segments and oblique, approximated hook-shaped spots. On the 2. segment is placed a pair of long, flexible appendages. In the full-grown larva the colour from the 4. segment onward is yellow. The egg is conical, flattened, yellowish, with numerous cell-like depressions. The larva is hatched in about 5 days.

L. cleobaea *Godt.* (31b). In this species the yellow transverse band of the forewing is broken up into *cleobaea.* 3 spots, sometimes also the disc of the hindwing is yellowish. It was described from the Antilles, but is also abundant in the north-west of South America to Bolivia. — In Central America, especially Honduras, it appears mostly in the form **atergatis** *Dbl. & Hew.,* in which the yellow subapical spots of the forewing are very large, *atergatis.* the 4. being united with the middle spot of the oblique band. — **pales** *Fldr.,* from the Upper Amazon, has very *pales.* small yellow spots and patches in the blackish apical part of the forewing, and the normally yellow spot at the apex of the cell has assumed the yellow-brown ground-colour. — **cinnamomea** *Weym.* is an interesting rare *cinnamomea* form from the Upper Amazon with mahogony-brown ground-colour. The markings are similar to those of *atergatis,* but the yellow subapical spots of the forewing are very large and extend from the apex to the black spot at the end of the cell, which is somewhat larger than in *eva.* Apparently very similar dark red-brown forms occur both of *eva* and of *atergatis.* The first may be recognised by the short cell of the hindwing and the very large, yellow subapical spots of the forewing; in the latter the cell is longer, the subapical spots are smaller and the ground-colour is less reddish.

halia. **L. halia** *Hbn.* (31c). This South Brazilian species differs from all the preceding in having only 3 subapical spots on the forewing and in the yellow longitudinal spot in the disc of the hindwing. This band-like spot is characteristic of many South Brazilian species of Ithomiids and Heliconines, which closely resemble *L. halia,* such as *Hirs. pseudethra Btl., Mel. ethra Godt., Mech. nessaea Hbn., Cerat. euryanassa, Heliconius narcaea Godt.,* etc., *referrens.* almost all of which fly together with *halia.* — As ab. **referrens** *ab. nov.* I designate a form in which this band-spot shows the normal yellow-brown ground-colour. — A further form, in which the yellow transverse band of *discreta.* the forewing is broken up into 3 spots, as in *cleobaea,* I call **discreta** *form. nov.* In this the yellow spot of the hindwing also mostly assumes a brownish shade.

3. Genus: **Ituna** *Dbl. & Hew.*

Mostly large, imposing butterflies with transparent, dark-margined wings. The forms are all rather closely allied. Cross vein of the hindwing almost straight and erect. ♂ with 2 reversible hair-pencils at the anus, as in *Lycorea.* Superficially the species are very similar to corresponding forms of *Olyras, Thyridia,* etc. They are chiefly mountain species. They occur from Central America to South Brazil. The larvae according to Boisduval are similar to those of *Lycorea* in shape and habits.

lamirus. **I. lamirus** *Latr.* (= completa *Stgr.*) (31c). In typical specimens the basal third of the forewing is black-brown. But examples commonly occur which have at the base a large semitransparent triangle, which often again is united beyond the median nervure with the spot between the median veins. This form I call *fenestrata.* ab. **fenestrata** *ab. nov.* Both forms vary in the extent of the yellow-brown colour at the distal margin of the hindwing, which sometimes spreads over the whole of the disc. They occur on the eastern slopes of the Andes of Colombia and Ecuador. — On the western slopes of the Andes of Ecuador occurs a local form which is *decolorata.* markedly distinct by the absence of the yellow-brown colour, and which I call **decolorata** *form. nov.* The dark band-marking is otherwise similar to that of *fenestrata,* but weaker, especially the dark subapical band of the forewing is wanting. On the other hand the anal angle of the hindwing is much more broadly blackish. — In *albescens.* Central America occurs the *fenestrata*-like form **albescens** *Dist.* The glassy spots of the forewing are narrow and oblong, and also yellowish brown, especially in the basal half, as is the hindwing except the dark margins and the radial veins. — The pupa of *lamirus* is elongate, with obtuse tip, brownish with longitudinal rows of dark double spots. The butterflies are fond of floating about in open places a few metres above the ground in the sunshine and the ♂♂ drink in the heat of the day at moist places on roads and river banks.

phenarete. **I. phenarete** *Dbl. & Hew.* (31 d), from Peru and Bolivia, is transparently yellowish and closely resembles *decolorata.* The margins and bands are, however, much more sharply defined, the hindwing at the distal margin *lanassa.* more sharply dentate, and only the club of the antenna is yellowish. — **lanassa** *Godm. & Salv.* is a form of *phenarete* with yellow brown inner margin to the forewing and the anal angle of the hindwing of the same colour.

ilione. **I. ilione** *Cr.* (31d), from South Brazil, is the smallest species of *Ituna,* and very similar to *phenarete.* The yellow club of the antenna is much shorter. The colour of the wings is more vivid yellow, the band over the discocellular of the forewing is broader, and on the under surface the margins and bands are partly edged with white.

3. Subfamily: **Ithomiinae.**

This group, which is also known under the names Neotropids and Mechanitids, is by far the richest in forms of the Danaids in America. It contains over $^{9}/_{10}$ of all the forms and like the *Lycoreinae* is confined to America. Superficially many species recall on the one hand the Lycoreines and on the other the Heliconines, but are differentiated by the neuration, the long, thin antennae and in the ♂ very easily by the hair pencil at the costal margin of the hindwing, which in the Lycoreines is placed at the anus and in the Heliconines is generally absent.

Concerning the early stages unfortunately very little is as yet known. The larvae are mostly cylindrical with short tubercles, in some genera with long appendages on segment 2. They are said mostly to live on Solaneae. The pupae, in contrast to the long, thin bodies of the butterflies, are mostly short and stout. They have often brilliantly shining, metallically glossy surfaces, the gloss of which, however, fades after the death of the pupa.

The butterflies have mostly an elongated body, glossy wings and long antennae. The predominant colour of the wings, in addition to the colourless, glassy tone, is a reddish yellow-brown tinge, combined with blackish, yellow and white markings, this being the so-called „*Lycorea*-habitus". Blue, red or green is hardly ever met with. According to the more brilliant or more dull colours the different groups prefer more open places or the dense, dark primeval forest. Their flight is mostly irregular and sluggish. In open, unwooded localities only a few forms are occasionally met with.

The area of distribution of the Ithomiids embraces the whole of tropical and subtropical America. Single species occur also in California and in Argentina. They also inhabit the mountains up to elevations of 3000 m. Most species, however, are found below the Equator in the valleys of the Andes. Species of the genera *Mechanitis, Ceratinia* and the small transparent *Ithomiinae* especially occur in great abundance. Among them are found singly examples of similar, rare species of the genus *Napeogenes.* Many species have a wide range of distribution and occur, though with slight variations, almost everywhere; others again favour exclusively certain mountain-valleys. One can even sometimes take a few specimens of certain rare species daily in particular localities, although the species is not found elsewhere within a considerable distance.

4. Genus: **Olyras** *Dbl. & Hew.*

The few species of this genus are large, semitransparent, mostly rare butterflies. They may be distinguished from similar forms of other genera by the strongly sinuate inner margin of the forewing, especially in the ♂, and the broad hindwing with the costal margin correspondingly curved. The ♂♂ have 2 hair-pencils at the costal margin of the hindwing. — They are mountain butterflies, and are fond of floating about in open places mostly at a considerable height above the ground.

montagui. **O. montagui** *Btlr.* (31 d). Forewing dark brown, with irregular, glassy spots in the distal half. Hindwing reddish brown with dark distal margin and glassy spot at the apex, which on the under surface is prolonged as a band towards the inner margin (in many examples also on the upper surface). This rather rare species flies on the eastern slopes of the Andes of Colombia and Ecuador; it superficially resembles *Ituna lamirus* and also *Dircenna olyras* and *Napeogenes excelsa,* which occur in the same localities, but are distinctly smaller. — *sticheli.* **sticheli** *Hsch.*, from Eastern Peru, is very similar to the preceding, but is distinguished by a large red-brown triangle at the base of the forewing. The dark distal margin of the hindwing moreover is broader and the white spots on the under surface are larger. — *staudingeri.* **staudingeri** *Godm. & Salv.* (= centralamericana *Stgr. i. l.*), from Central America, is similar to the preceding, but has only one yellow-brown streak at the median of the forewing and smaller yellowish vitreous spots. The colour of the hindwing is yellow-brown. In its apex is placed on the upper surface only a small, transparent spot.

crathis. **O. crathis** *Dbl. & Hew.*, from Venezuela, is similar to the preceding, and also to the following. The oblong spot at the base of the forewing is broader, but light yellow-brown. The vitreous spots are smaller and brownish. The hindwing is light brown with broad dark margin and 2 indistinct vitreous spots. — *theon.* **theon** *Bates* (31d). From Central America; here the vitreous spots are larger, and also the yellow-brown spot at the base of the forewing. Hindwing unicolorous yellow-brown with narrower dark distal margin and light discal spot on the under surface.

praestans. **O. praestans** *Godm. & Salv.* (31 e) recalls the somewhat larger *Ituna phenarete.* The forewing is vitreous with dark margins and oblique bands. The hindwing transparent yellowish with dark costal and distal margins. On the under surface white double spots are placed at the distal margin and 3 white dots at the costal margin of the hindwing. It inhabits north-eastern Colombia. — *insignis.* **insignis** *Salv.*, from Central America, has red-brown colour at the anal angle of the hindwing and on the underside only 1 white dot at the costal margin.

translucens. **O. translucens** *Hew.*, from western Ecuador, is the smallest and rarest species. It is almost diaphanous, only at the base slightly yellow, with dark margins and a transverse band on the discocellulars of the forewing to the distal margin. On the under surface small white dots are placed at the distal margin.

5. Genus: **Eutresis** *Dbl. & Hew.*

Here also belong only a few forms, of similar size and colouring to *Olyras,* but without the strongly sinuate margins. They likewise inhabit the mountains, from Peru to Central America.

hypereia. **E. hypereia** *Dbl. & Hew.*, the first described form and type of the genus, is very similar to the figured *theope* (31e). It is somewhat larger, has broader dark margins and bands, and the base of the forewing and the whole disc of the hindwing are reddish yellow-brown. It flies in the mountains of Venezuela. — *hyspa.* **hyspa** *Godm. & Salv.* (= antioquensis *Stgr.*) is a local form of *hyperia* from Ecuador and Colombia, which is distinguished by much weaker red-brown colouring, especially in the disc of the forewing. — *imitatrix* **imitatrix** *Stgr.* (31e) resembles the species of *Thyridia* and of the transparent *Aprotopos.* But it is very nearly allied to the preceding and differs chiefly by the absence of the red-brown colour on both wings, as well as by the blackish transverse band across the middle of the hindwing. It occurs on the eastern slopes of the Andes of Peru and Ecuador. — *theope.* **theope** *Godm. & Salv.* (= dilucida *Stgr.*) (31e). This is the Central American form of *hypereia,* from Costa Rica. It is distinguished especially by the paler margins and the narrower distal margin of the hindwing, which is proximally edged with yellow-brown.

6. Genus: **Athesis** *Dbl. & Hew.*

The species of this genus are similar to the preceding, but mostly considerably smaller. They are distinguished by the angled lower discocellular and the long cell of the hindwing. All are mountain species from the north-west of South America.

clearista. **A. clearista** *Dbl. & Hew.* (31 e), from Venezuela, has vitreous wings with dark margins and two oblique bands over the discocellular and across the middle of the cell of the forewing. A streak along the median of the forewing and the veins in the disc of the hindwing are yellow-brown. The long antennae are black.

acrisione. **A. acrisione** *Hew.*, a beautiful but rare species from Ecuador, is considerably larger; the apex of the forewing margined with yellow-brown. Across the end of the cell of the hindwing to the inner angle runs a black band, part of which is confluent with the distal margin. In the latter are placed also above large, white submarginal dots.

dercyllidas. **A. dercyllidas** *Hew.* (32 a). The wings have the appearance of greenish glass; especially on the under surface the glassy spots are more strongly margined with green. Some of the dark margins and bands on the upperside are bordered with yellow-brown. On the underside they are yellow-brown with dark edges. In the pattern and the greenish colouring the species recalls *Colaenis dido;* it flies in Colombia and Ecuador. —
demylus. Godman and Salvin designate as **demylus** a form from southern Ecuador with very narrow margins and bands.

hewitsoni. **A. hewitsoni** *Srnka.* This species was figured by Hewitson as ♂ to *dercyllidas,* but recognised by Srnka as a separate species. It differs in the brownish tone of the hyaline spots and the narrower margins and bands of both wings. In the oblique band across the end of the cell of the forewing is placed towards the distal margin another oblong hyaline spot.

oligyrtis. **A. oligyrtis** *Hew.* is a further form from Ecuador, similar to *dercyllidas.* It is said to have an indistinct band between the discoidal veins before the distal margin of the hindwing, and also 3 white dots at the costal margin; in addition a black band from the apex of the hindwing to the 1. median vein.

7. Genus: **Thyridia** *Hbn.*

In this genus, which Doubleday and Hewitson call *Methona,* belong only a few larger species with transparent, black-marked wings and thin black antennae provided with stronger, yellow club. The cell of the hindwing is small and closed almost at right angles to the median. The species belong mostly to the plains and occur from Guiana to Argentina and westwards to the Upper Amazon.

confusa. **Th. confusa** *Btlr.* (= psidii *Cr.*) (32a). This species was long taken for the similar *psidii* of Linné, which, however, belongs to quite another genus. The latter (pl. 34c) is easy to recognise, in addition to the neuration, by the small reddish dots at the base of the forewing. *confusa* has transparent yellowish wings with black margins and a transverse band on the discocellular of each wing, as well as a transverse streak through the cell of the forewing. It occurs on the Lower and Upper Amazon, and in Guiana, in the shady places of banks
psamathe. of rivers. — **psamathe** *Godm. & Salv.*, from eastern Ecuador and Peru, is a local form with narrow bands and margins. According to Godman and Salvin there is a corresponding form of *Dismorphia orise,* whose ♀ very nearly resembles that of *Th. confusa* and which occurs in the same localities as *psamathe* and is said likewise to
curvifascia. have narrower bands and margins. — **curvifascia** *Weym.*, from Ecuador and the Upper Amazon, is a form in which the black at the base of the hindwing is extended beyond the point of origin of the 1. median vein.

themisto. **Th. themisto** *Hbn.* (32 a). May be distinguished from the similar *confusa* by the absence of the broad transverse band on the discocellular of the hindwing. The larva according to W. Müller lives on species of Brunfelsia. It is deep velvety black with orange-coloured belts. The pupa is elongated, immovable, white-yellow with narrow orange-coloured transverse bands and black stripes and spots. The species lives in
megisto. central and southern Brazil to Argentina. — Felder describes as **megisto** a form of the preceding from Bahia, which is said to be larger and to have the veins less margined with black. On the other hand the median band of the forewing is much broader and the distal margin of the hindwing irregular.

singularis. **Th. singularis** *Stgr.*, likewise from Bahia, is smaller than *themisto* and has the inner margin of the hindwing not dentate at the 2. median vein and on the upper surface edged with white. The costal margin of the hindwing beneath is broadly yellow at the base and not interrupted with black on the precostal vein.

8. Genus: **Tithorea** *Dbl. & Hew.*

In this genus 2 quite different groups were formerly included and I am compelled to separate the second group under the name of *Hirsutis.* The principal differences are the following: In *Tithorea* the eyes are hairy, the tibiae of the middle and hindlegs are much longer than the femora. The ♂♂ have only 1 hair-tuft at the costal margin of the hindwing. In *Hirsutis* the eyes are naked; the tibiae of the middle and hindlegs are not much longer than the femora and the ♂♂ have 2 hair-tufts. The species of the genus *Tithorea* have short broad wings with black ground-colour. They are not at all like the other Ithomiids and recall the *Danais*-species in the shape of the wings. They inhabit the north-west of South America to Panama.

T. humboldti *Latr.* (= flavomaculata *Stgr.*) (32 a). A stately, velvety black butterfly with yellow *humboldti.* macular band across both wings and yellow subapical spots on the forewing. On the under surface the forewing has also yellowish stripes at the base and behind them a double spot. The hindwing has beneath at the base a yellowish streak and a further oblique band, as well as a brown spot outside the cell. In addition both wings bear a row of white submarginal spots. From the Cauca Valley in Colombia, according to Latreille also from the Amazons (?). — As **albomaculata** *Hsch.* I have designated a form in which the spots on the forewing *albomaculata.* are white. It appears to be commoner than the typical *humboldti,* and occurs on the eastern slopes of Ecuador and Colombia at elevations of ca. 1500 m.

T. cassandina *Srnka,* from Ecuador, is a smaller species, similar to *albomaculata.* The yellow spots *cassandina.* of the hindwing are very small, on the contrary the brown spot on the under surface at the end of the cell is very large. The submarginal spots on the underside are bluish white. The species recalls *Heliconius cassandra Fldr.*

T. bomplandi *Guér.* (32 b) is the commonest species of the genus. On the upperside the forewing has *bomplandi.* besides the spots of *albomaculata* also the white streak and double spot of the underside. The hindwing is marked as in *pavonii* (figured on the upper surface), only proportionately larger. Comes mostly from Colombia, but also from Bolivia. — **descandollesi** *Stgr.,* from the Cauca Valley in Colombia, is a form in which all the nor- *descandollesi.* mally white spots of the upper surface are yellow. — **latreillei** *Stgr.,* likewise from the Cauca Valley, has the *latreillei.* yellow spots like *descandollesi,* but the band of the hindwing is much broader and behind it follows a further yellow macular band almost as in *humboldti.* On the under surface the brown spot at the discocellular is much smaller, but continued by 2 smaller spots.

T. regalis *Stich.* (= dagua *Stgr. i. l.*) is very similar above to *bomplandi,* except that the white *regalis.* spots at the discocellular of the forewing are perceptibly larger. Beneath on the contrary the ground-colour is principally brownish except on the disc of the forewing and the bordering of the white spots and dots. The species comes from the Rio Dagua in Colombia.

T. pavonii *Btlr.* (32 b) is the smallest species of the genus and above similar to *bomplandi.* Streak and *pavonii.* double spot at the base of the forewing are yellowish. On the under surface some of the spots at the end of the cell of the forewing are also yellowish and on the hindwing there are 2 complete rows of brown spots between the rows of white dots and the oblique band. Butler describes the species from Panama and compares it with the similar *Heliconius peruvianus.* But it occurs also in western Ecuador and Peru, as well as in Bolivia. In Ecuador it flies with the confusingly similar *Heliconius atthis* in the same localities.

T. tamasea *Hew.,* from Colombia, has some similarity to *descandollesi,* but the yellow spots at the base *tamasea.* and at the end of the cell of the forewing are absent; moreover the yellow band of the hindwing is narrower and abbreviated. On the under surface both wings have whitish marginal dots. The forewing has a brownish band near the median and 2 brownish spots near the apex. The hindwing has further 2 brownish bands at the base and in the disc before the yellow spots. In an aberration from the same locality the band of the hindwing is reduced to 2 spots, of which the distal one is partly brownish. On the under surface almost the whole disc of both wings is brownish. — A further form, which I call **lugubris** *form. nov.,* has the upper surface *lugubris.* of the wings unicolorous black-brown, only the minute white double dots in the distal margin of both wings remain. On the under surface there are also a brown subapical band on the forewing and submarginal band on the hindwing. The form comes likewise from Colombia.

9. Genus: **Hirsutis** *gen. nov.*

The distinctive characters of this genus have already been given under *Tithorea.* It may further be divided into 2 large groups, namely: a) Wings short and broad, patagia black-brown. b) Wings elongate, patagia red-brown. The species of the first group recall *Danais* and *Tithorea* by their wing-contour; those of the 2. group have pronounced „*Lycorea*-habitus". The species are distributed over the whole Neotropical region from Mexico to South Brazil. They are mostly found singly at the edges of the woods or at flowering shrubs with the corresponding species of *Melinaea, Mechanitis* and *Ceratinia.*

a) Patagia black-brown.

H. pinthias *Godm. & Salv.* (32 b). A stately butterfly with broad wings. Forewing black-brown with *pinthias.* 12 irregular yellow spots. Hindwing red-brown with dark costal and distal margins. On the under surface the hindwing has in addition a dark oblique band from the apex to the inner margin, at the beginning of this band is placed a larger, yellow spot. Both wings have beneath white distal-marginal dots. This form occurs especially in Panama and Costa Rica.

tarricina. hecalesina. parola. obscurata. **H. tarricina** *Hew.*, from Colombia, is nearly allied to the preceding, but has at the apex of the hindwing 3 larger, yellow spots. — **hecalesina** *Fldr.* (32 c), likewise from Colombia, has towards the dark distal margin of the hindwing proximally a complete band, composed of large yellow spots. Moreover the whole costal margin of the forewing is dark brown as far as the median. — Godman and Salvin designate as **parola** a form from the Cauca Valley, in which the costal margin of the hindwing is only narrowly black, so that the dark spot at the apex stands out distinctly. — On the other hand I call **obscurata** *ab. nov.* an aberration from Colombia in which almost the whole hindwing except a spot at the inner angle is black-brown.

bonita. **H. bonita** *Hsch.* represents the *Pinthias*-group in eastern Ecuador. In this is placed on the hindwing between apex and discocellular a rounded blackish spot and on the under surface in addition 2 further spots in the disc, which form an oblique band with the subapical spot.

duenna. monosticta. **H. duenna** *Bates,* from Guatemala and Honduras, differs strikingly from the preceding in a blackish oblique band from the apex of the hindwing nearly to the middle of the inner margin, as well as in a reddish, oblong spot at the base of the forewing. Moreover the collar is red-brown. Bates found the species only on the tableland of Duenas in Guatemala. — **monosticta** *Godm. & Salv.*, from Panama and Costa Rica, is said to be distinguished from *duenna* by the absence of the dark band on the upper surface of the hindwing, but to have a macular band on the under surface.

irene. umbratilis. **H. irene** *Drury,* from Jamaica, is a form similar to *tarricina,* with only 2 yellow spots at the apex of the hindwing and 2 dark spots outside the cell, as well as a red-brown spot at the base of the forewing. — **umbratilis** *Bates,* from Panama, differs from the preceding by the absence of the red-brown spot at the base of the forewing and also of the yellow spots at the apex of the hindwing. The antennae are brownish, at the base blackish.

helicaon. **H. helicaon** *Godm. & Salv.* has larger, yellow spots on the forewing and 2 red-brown longitudinal spots at the base. The hindwing has narrower margins and no dark spot on the disc. The habitat is Costa Rica.

tagarma. anachoreta. **H. tagarma** *Hew.*, from Bolivia, is a rare species with somewhat narrower wings, larger yellow spots and large red-brown spot at the base of the forewing. The hindwing is light reddish yellow-brown with narrower dark margin and yellow oblique macular band behind the discocellular. — In the local form **anachoreta** *Thieme,* from Peru, the yellow oblique band is shorter and broader, and behind the discocellular of the hindwing is placed an oblong blackish spot. The antennae are black. Collar red-brown.

b) Patagia red-brown.

hippothous. **H. hippothous** *Godm. & Salv.* (32 c). This species forms the transition between the two groups. The patagia are still darker brown; the hindwing broad, but with macular longitudinal band and the antennae except at the base yellow-brown. The species differs from *irene Drury* in the two red-brown longitudinal spots at the base of the forewing and the band-like spots in the disc of the hindwing.

hermias. neitha. egaënsis. melanina. **H. hermias** *Godm. & Salv.* Markings as in the figured *neitha Hpffr.* Colour on the basal half of the forewing and on the hindwing vivid red-brown. The bands and spots in the apex yellow. The black marking of the hindwing is narrower. This is the form from eastern Ecuador, whilst **neitha** *Hpffr.* (32 c), from eastern Peru, is distinguished by the yellow ground-colour of both wings, especially on the under surface. — **egaënsis** *Btlr.*, from the Upper Amazon, is distinguished from the preceding by the rusty ground-colour of both wings and by the very small white marginal dots of the under surface. — **melanina** *Hsch.* is a form of *egaënsis,* likewise from the Upper Amazon. It differs in the absence of the yellow colouring and has already been mentioned under *Lycorea concolor.* — Whilst *hermias* and the allied forms have all a spear-shaped marking behind the end of the cell of the forewing towards the distal margin, in

hermina. napona. **H. hermina** *Hsch.* (32 d) the yellow oblique band of the forewing is broken up into about 10 smaller spots. This is a form of *hermias* from the eastern spurs of the Andes at the River Napo in Ecuador. — A further form from the same localities, **napona** *Hsch.*, is distinguished by narrower distal margin to the hindwing and the absence of the blackish macular band.

brunnea. **H. brunnea** *Hsch.*, from eastern Peru, is superficially similar to *melannia* in the absence of the yellow colouring. In the markings, however, it approximates to *napona.* It has likewise narrow distal margin to the hindwing and the dark macular band is only feebly indicated.

pseudonyma **H. pseudonyma** *Stgr.* has similar markings to *hermias.* It may be recognised by having mostly only 3 isolated blackish spots in the disc of the hindwing. The yellow oblique band of the forewing *pseudethra.* *assimilis.* *lateflava.*

encloses at the end of the cell only a smaller dark spot and terminates at the distal margin in a more spear-shaped point. This species occurs in Bolivia, Paraguay and Argentina. — In southern Brazil occurs the similar **pseudethra** *Btlr.* (32 d), which is distinguished by the characteristic yellow longitudinal band of the hindwing and has already been mentioned under *Lycorea halia.* — I have described as **assimilis** *Hsch.* the form of *pseudonyma* without yellow colouring, in which it resembles *melanina* and *brunnea. Assimilis* is, however, easy to recognise by the 3 isolated spots in the disc of the hindwing. It occurs, like the similar forms, on the Upper Amazon. — As **lateflava** *form. nov.* I designate yet another form of *pseudonyma* with very broad yellow oblique band on the forewing; this band is suddenly narrowed to a small, rounded point close to the distal margin. In it are placed in addition to the spot at the end of the cell 2 small dark dots before the distal margin. This form comes from Santa Cruz in South Bolivia.

harmonia. *mopsa.* *megara.*

H. harmonia *Cr.* (32 d). In the typical specimens of this species from Guiana the dark longitudinal band of the hindwing is confluent with the dark distal margin into a large patch, as in *Lycorea ceres* and many Ithomiids. The forewing is pointed, especially in the ♂. The yellow oblique band ends in three points. — The form with normal *Lycorea*-habitus and separated bands is **mopsa** *F.* In this the macular band of the hindwing is narrowed towards the inner margin; ground-colour red-brown. It occurs in Guiana and on the Lower Amazon. — A local form with light yellow-brown ground-colour from the Antilles and Trinidad has been called by Godart **megara** (= flavescens *Kirby*). — According to Guppy the larva of this form is black with white dots and 2 long, immoveable, antenna-like appendages on the 2. segment. It feeds by day on Echites sp. The eggs are similar to those of *Lycorea ceres,* yellowish with numerous impressions, and are laid singly on the underside of leaves.

cuparina.

H. cuparina *Bates* in unknown to me. According to the description it approximates to the following species (*furia*), as the yellow oblique band of the forewing is said to terminate obtusely. Bates compares it with the common form from the Amazon and says that it is only to be found at the southern tributary of the Middle Amazon, the Tapajos.

In the following forms the longitudinal band of the hindwing is still more distinctly pointed proximally.

salvadoris.

H. salvadoris *Stgr.* This large species resembles *hippothous.* It occurs also in Central America (San Salvador, Honduras), but has lighter, yellow-brown ground-colour and larger yellow spots. It approaches the following forms in the keel-shaped band of the hindwing.

furia. *furina.* *flacilla.*

H. furia *Stgr.* (32 d) may be distinguished from the similar species by the yellow oblique band of the forewing, which terminates obtusely at the distal margin, and by the proximally pointed longitudinal band of the hindwing. It flies in Venezuela and Colombia. — In **furina** *Godm. & Salv.* the oblique bands of the forewing are broken up into small yellowish spots. It is commoner and more widely distributed than the typical *furia,* occurring in western Ecuador and South Bolivia as well as in Colombia and Venezuela. — **flacilla** *Godm. & Salv.,* from the Cauca Valley in Colombia, differs from the preceding in having 3 yellow spots at the apex of the hindwing, which are margined with black; also the base of the forewing is more broadly blackish and the brownish basal streak-spots are correspondingly smaller.

10. Genus: **Athyrtis** *Fldr.*

In size and markings the species of this genus are very similar to those of *Melinaea,* but are distinguished at once by the shorter antennae and the angled lower discocellular of the hindwing. (In the figure of *Ath. mechanitis,* pl. 33 a, the neuration is indistinct).

The few forms of this genus are all very rare and occur only on the eastern slopes of the Andes from Colombia to Peru.

mechanitis. *oberthueri.* *salvini.* *amanga.*

A. mechanitis *Fldr.* (33 a) has the markings almost as in *Mechanitis doryssus,* but is considerably larger and may be recognised by the angled lower discocellular of the hindwing. The base of the forewing and the hindwing are red-brown; the former with blackish apical half and 3 yellow macular bands, the latter with yellow and black macular band, as well as dark distal margin. Both wings with small white marginal dots. — In the local from **oberthueri** *Srnka,* from Ecuador, the yellow longitudinal band of the hindwing is absent, and the bands of the forewing are smaller. — In **salvini** *Srnka,* from eastern Peru, the red-brown colour is duller and extends on the forewing beyond the discocellular. Apex and distal margin are black-brown with yellowish subapical band. At the end and again in the middle of the cell there is a black spot. The hindwing has a central row of 5—6 black spots and narrow, dark distal margin. — In a local form from the Upper Amazon, which I call **amanga** *form. nov.,* the whole apical half of the forewing is black-brown. In this is placed in addition to the yellowish, very narrow subapical band a brownish band near the end of the cell. Of the two black spots in *salvini* the distal one is suppressed in the dark apical half.

distincta. **A. distincta** *Hsch.* Similar to *mechanitis.* The subapical band of the forewing is small, the median band is proximally curved and encloses a large black spot at the end of the cell; the proximal band consists only of a spot in the cell. The hindwing has on the under surface at the end of the cell a large yellow spot which shows through slightly above.

11. Genus: **Melinaea** *Hbn.*

This genus contains numerous stately species of rather large size and mostly of red-brown ground-colour. They may be recognised by the long yellowish antennae and the long cell of the hindwing, with apparently 4-branched median. The Melinaeas are distinguished from the often very similar *Mechanitis*-species by the normal forelegs, which in *Mechanitis*-♂♂ are reduced to a knob and which in the ♀♀ have 4 joints to the tarsi. Moreover *Mechanitis* has much shorter antennae. The *Heliconius*-species, which are likewise often very similar superficially to *Melinaea,* are recognised by the small cell of the hindwing and the absence of the hair-brushes in the ♂♂. The *Melinaea*-species are distributed over the whole Neotropical region from Mexico to Argentina, but are mostly not very abundant, occurring singly in company with the corresponding species of *Mechanitis* and *Ceratinia.* The ♂♂ have 2 pairs of hair-tufts, of which the first (at the base) is pencil-shaped, the 2. (at the end of the cell) is broad and comb-like.

zaneka. **M. zaneka** *Btlr.* (= dora *Streck.*) (32 e). This beautiful, large species is distinguished from most of the other forms by the absence of the dark longitudinal band in the disc of the hindwing. The forewing shows the *Lycorea*-habitus, but without the yellow subapical spots. The dark distal margin of the hindwing is narrow and only present in the apical half. The species occurs only in eastern Ecuador, mostly in the dusk of the *maculosa.* primeval forest on undergrowth. — In ab. **maculosa** *Hsch.* the ground-colour is darker red-brown. The hindwing bears in addition one or two incomplete, dark longitudinal bands, as in *menophilus.* — In a further interesting *discurrens.* aberration, which I call ab **discurrens** *ab. nov.,* the ground-colour is likewise darker. At the distal margin of the hindwing are placed large dark brown projections and between the end of the cell and the apex a dark zigzag line runs from the costal to the distal margin.

menophilus. **M. menophilus** *Hew.* (= ishka *Btlr.*) (32 a). A widely distributed species; it is smaller than *zaneka,* has a broader, dentate oblique band on the forewing and on the hindwing 2 blackish macular longitudinal bands. *cocana.* It occurs in the eastern Andes from Colombia to Peru. — In the local form **cocana** *Hsch.,* from the upper Napo in Ecuador, the two bands of the hindwing are united into a large spot, in which the veins still remain *maenius.* finely brownish. — In the local form **maenius** *Hew.* the ground-colour is dark red-brown and the black bands *tarapotensis.* and patches are very large, partly comfluent. From the Upper Amazon (Teffé). — As **tarapotensis** *form. nov.* (*Bang.-H. i. l.*) I designate another form with duller ground-colour from Tarapoto on the Upper Amazon. Here the oblique band of the forewing is narrower; the dark bands of the hindwing are larger and diffuse. On the *chincha.* under surface the dark markings at the costal margin and in the disc of the hindwing are absent. — **chincha** *Druce* is a form of *menophilus* in which the yellow oblique band of the forewing is absent; it has already been mentioned with the similar forms under *Lycorea concolor.* It comes like these from eastern Peru, and has the black patches exactly as in *menophilus.*

messenina. **M. messenina** *Fldr.* has the appearance of *Mechanitis messenoides Fldr.* (33 f), the forewing similar to *menophilus,* the hindwing is however black-brown except for a red-brown subapical spot. In eastern Colombia *mothone.* and Ecuador. — **mothone** *Hew.* (= cydippe *Salv.*) (32 e). Here the yellow oblique band is absent. The colour consequently appears plain black-brown with broad red-brown oblique band with black spots in it. The following from other genera have very similar markings: *Mechanitis deceptus, Ceratinia bicolora* and *semifulva, Hyposcada fallax,* and also *Heliconius aristiona* and their varieties. *mothone* occurs on the eastern slopes of the Andes from Colombia to Peru and Bolivia in slightly differing forms.

All the preceding species of *Melinaea* have a broad black apex to the forewing. The following forms have all a yellow or brownish subapical macular band.

marsaeus. **M. marsaeus** *Hew.,* from the Amazons, is similar to *menophilus,* but has a narrower, curved yellow oblique band, which has proximally another spur behind the middle. The black spots at the end of the cell and in the basal part are joined together. In the black apical part are placed 3 oblong red-brown spots.

divisa. **M. divisa** *Stgr.* is similar to the preceding in the markings. The yellow oblique band is however suppressed by the red-brown ground-colour. Moreover a yellow macular band is placed in the apex. — In the first described *lucifer.* **lucifer** *Bates* (33 a) the two longitudinal bands of the hindwing are confluent. Both forms occur on the Upper Amazon.

flavosignata **M. flavosignata** *Stgr.* (= egesta *Godm. & Salv.*) has a broader yellow oblique band than *menophilus* and *hicetas.* a yellow macular band in the apex. The habitat is Colombia and East Peru. — In **hicetas** *Godm. & Salv.* (32 e) the yellow oblique band is suppressed by the red-brown ground-colour. Examples, however, occur like the figure, in which some yellow colour is to be seen at the costal margin. — In **magnifica** *Hsch.* the subapical spots have also become completely red-brown. — **orestes** *Salv.* is said to be similar to *lucifer,* without the yellow spots at the costal margin and in the apex of the forewing. The hindwing is as in *hicetas.* — **phasiana** *Btlr.* (33 a) differs from *magnifica* in the red-brown, black-margined apex. It is very similar to *Mechanitis mazaeus.* All these forms come from the Upper Amazon, from eastern Peru. — **macaria** *Godm. & Salv.* has the forewing as in *flavosignata,* except that the two oblong spots at the base are considerably larger. The hindwing has a large black spot as in *lucifer* and *messenina.* From North-East Colombia. *magnifica.* *orestes.* *phasiana.* *macaria.*

M. mneme *L.* (= crameri *Godm. & Salv.*) (33 a). has likewise a black-brown spot on the hindwing, which, however, extends to the costal margin, the base and a subapical spot remain red-brown. The oblique band of the forewing is narrower and in the middle dentate; the spots at the base are rounded. Flies only in Guiana and on the Lower Amazon. *mneme.*

M. mediatrix *Weym.* (33 b), a superficially very similar, but sharply separated species, occurs on the contrary both on the Upper and Lower Amazon and also in Guiana. The forewing has at the base a pointed double spot, the hindwing at the costal margin a red-brown band. Moreover, the hindmargin of the forewing is broadly black, not so in *mneme.* — In the form **mauensis** *Weym.* the black patch of the hindwing is broken up into 2 bands. — In a further form, which I call ab. **anina** *ab. nov.,* the yellow oblique band of the forewing is broken up into 2 small spots: one at the end of the cell, the other (oblong) in the black apical half at the distal margin. From British Guiana. *mediatrix.* *mauensis.* *anina.*

M. satevis *Dbl. & Hew.* (33 a) has the markings on the forewing as in *mneme,* but the ground-colour is a peculiar wine-red, as is the case in only a few other forms, such as *Melinaea madeira* and *Ceratinia viola.* The hindwing is wine-red with dark distal margin and the indication of a longitudinal band in the apex, which is more distinct on the under surface. On the underside the distal margin has small white marginal dots as in *mneme.* Bolivia. *satevis.*

M. maelus *Hew.* (= pardalis *Bates*) has markings and colouring like **cydon** *Godm. & Salv.* (33 b), but is distinguished by a yellow oblique band across the end of the cell of the forewing nearly to the distal margin, which is absent in *cydon.* A very similar pattern recurs in *Ceratinia castanea* and *anastasia.* All these species fly on the Upper Amazon. Hewitson describes under *maelus* another form, which he considers a variety, but which belongs to quite another species. I call it: *maelus.* *cydon.*

M. manga *spec. nov.* It has a lighter, red-brown ground-colour, a dark apex to the forewing with red-brown spots and 2 very small yellow ones. The basal half and the hindwing are as in *marsaeus,* except that the median band is stronger and wedge-shaped. From the Amazons. *manga.*

M. madeira (*Stgr. i. l.*) (33 b) has a yellow oblique band like *maelus,* but this is extended into the cell and to the 1. median vein. The ground-colour is wine-red, the apex dark. The median band of the hindwing consists of 3 larger oblong spots and 1 small one. This form from the Upper Amazon (Manicoré) appears to be commoner than *maelus* and *cydon.* *madeira.*

M. maeonis *Hew.,* from the upper Napo in Ecuador, has a pattern similar to that of *maelus,* but the whole apical half of the forewing is black-brown except for the narrow transverse band and the 3 large subapical spots. The hindwing has a dark distal margin and a curved macular band, which is connected at the apex with the dark costal margin. — On the Ucayali in Peru occurs a nearly allied form, which I call **zamora** *form. nov.* (*Bang-H. i. l.*). Here the ground-colour is much lighter, especially before the middle of the wing, and the hindwing is distinguished by a light yellow longitudinal band between the costal margin and the dark median band. The distal margin is only very narrowly edged with dark. *maeonis.* *zamora.*

M. mnemopsis *Berg* (= boliviana *Stgr. i. l.*) (33d). This species has only the beginning of the yellowish and dark bands of *zamora* at the apex of the hindwing. The distal margin is broadly edged with blackish, beneath with distinct white dots. On the forewing the yellow median band is divided into 2 spots. This large form comes from Peru and Bolivia. *mnemopsis.*

M. scylax *Salv.* (= ribbei *Weym.*) (33 c), from Costa Rica, has a unicolorous yellow-brown hindwing with narrow dark distal margin. The forewing has the usual bands and spots with large black spots in the disc. *scylax.*

M. lilis *Dbl. & Hew.,* from Venezuela, and **imitata** *Bates* (= tachypetis *Fldr.*) (33 c), from Central America and Mexico, are very closely allied. In *lilis* the median band of the forewing is continuous and brownish; in *imitata* it is yellow and divided Moreover, in *lilis* the central subapical spot is much larger. — In the genus *Ceratinia* there are likewise 2 very similar forms from Central America and Venezuela: *dionaea* and *fraterna,* and again *Heliconius telchinia* and the allied forms are confusingly similar to the two Melinaeas. *lilis.* *imitata.*

M. ethra *Godt.* (= phasis *Fldr.*) (33 d). This typical South Brazilian species may be at once recognised by the yellow longitudinal band of the hindwing and the isolated yellow subapical spots of the forewing. It has been already mentioned under *Lycorea halia* with the similar forms. It especially resembles *Heliconius narcaea* (= *eucrate*), with which it flies together. *ethra.*

thera. *mnasias.* The small **M. thera** *Fldr.* has also a similar pattern, but approximates more nearly to **mnasias** *Hew.* (33 d). *thera* is the same size as *mnasias* and has the same markings with the addition of a large white subapical spot on the forewing and small white marginal dots. It has further a yellow longitudinal band on the hindwing like *ethra.* The typical specimens of *mnasias* from the Amazons have white marginal dots and 2 larger, yellow spots in the end of the cell and before the oblique band. In the example figured from British Guiana these spots are *tecta.* absent and the marginal spots are yellow. I consequently call this local form **tecta** *form. nov.*

equicola. **M. equicola** *Cr.* is very similar to the figured *Mechanitis equicoloïdes* (33 e). The black spots at the end of the cell of the forewing and at the distal margin form a band and before this is placed a yellow oblique band. The black spot between the median veins in the disc is absent. On the hindwing the median band and the very broad distal margin are confluent at the inner angle.

idae. **M. idae** *Fldr.* (33 c) is an entirely isolated species from Colombia and Ecuador. The yellow apical spots are as in *mneme,* on the other hand the yellow oblique band is abbreviated and towards the base widened. The hindwing is conspicuous by the absence of the longitudinal band and by the very broad dark distal margin. On the under surface both wings have small white distal-marginal dots. The example figured is from Colombia; the specimens from Ecuador differ in the smaller size and narrower distal margin of the hindwing, which is sharply defined proximally. *Ceratinia philetaera* and *Heliconius clara* have similar markings to *idae.*

paraiya. **M. paraiya** *Reak.* (33 c). Between the yellow subapical and median band are placed 2 spots in the black apical half of the forewing and in the cell two black spots. The hindwing has dark distal margin and a macular band. This common species occurs in Guiana and on the Amazons as well as in Central and South *egina.* Brazil; it is very similar to *Mechanitis macrinus* and also to *Heliconius metaphorus.* — In the allied **egina** *Cr.* the median spots of the band of the hindwing are merged with the distal margin into a large spot. In the forewing there is a third yellow spot between the two median ones. This form flies especially in Guiana and on the Middle Amazon.

messatis. **M. messatis** *Hew.* (33d) forms with the two following varieties a small separate group which closely resembles *Heliconius ismenius.* Particularly striking are the numerous white spots on the forewing. The median band of the forewing is only developed in the apical half. *messatis* occurs in Colombia, whilst the nearly allied *parallelis.* *dodona.* **parallelis** *Btlr.* flies in Panama. The latter has a complete longitudinal band on the hindwing. — **dodona** *Hpffr.*, from Bolivia, has on the forewing besides the marginal dots yellow instead of white spots. The hindmargin of the forewing is black, the band of the hindwing complete.

12. Genus: **Mechanitis** *F.*

The differences between this genus and the often very similar *Melinaea* have already been given under the latter. The species are smaller throughout, have long, narrow wings and shorter antennae. In colour and markings the *Lycorea*-habitus predominates.

This genus has a very wide range; species occur almost everywhere from California to Argentina; many forms, especially in the primeval forests of the plains, occur at times in such enormous numbers as are otherwise attained only by certain colourless Ithomiids. At such times the bushes at particular places are literally covered with them. *Mechanitis* also produces every possible variety of colouring. Most forms vary so much that one can arrange an almost uninterrupted series of transitions between all the varieties. Many specimens are indeed difficult to place with a definite species, and hybridisation apparently occasionally takes place between nearly allied forms.

polymnia. **M. polymnia** *L.* (33 e). Typical examples of this very variable species, with small subapical spot and large yellow median band on the forewing, occur especially in Guiana and on the Lower Amazon. The two black spots at the end of the cell are mostly confluent. The median band of the hindwing is broad and dentate. *chimborazona.* — **chimborazona** *Bates* is a local form from the western slopes of the Andes in Ecuador, with very broad yellow median band at the costal margin of the forewing, which is suddenly narrowed into a streak behind the cell. The ♂♂ have in the hindwing a very broad black median band; in the ♀♀, however, this is only *casabranca.* present at the apex. — **casabranca** *Hsch.* is the local form from Central and South Brazil, which is easy to recognise by the characteristic yellow longitudinal band in the hindwing. Moreover the yellow subapical spot in the forewing is absent and the double spot at the end of the cell is widened at the costal margin. The median *caucaënsis.* band of the hindwing is narrow. — I designate as **caucaënsis** *form. nov.* the form from the Cauca Valley in Colombia. This is distinguished by dark brown-red ground-colour, large yellow band-spot and small black spots at the end of the cell of the forewing. The black spot in the cell is produced into a point. The broad median band of the hindwing in the ♂ is almost edentate.

equicoloïdes. **M. equicoloïdes** *Godm. & Salv.* (33 e). This and the following form differ from all the others in the larger size and more powerful build. But the marking is similar to that of *doryssus.* Very striking are 2 black, isolated spots at the costal margin of the hindwing. Whilst the form *equicoloïdes* from the Upper Amazon *sylvanoides.*

has on the hindwing the usual pattern with black, dentate longitudinal band and similar distal margin, in the allied **sylvanoides** *Godm. & Salv.*, from Guiana, the two bands are confluent at the inner margin. The latter form is said to resemble *Heliconius sylvana.*

pannifera.

M. pannifera *Btlr.* (= plagifera *Stgr.*) (33e). Here the median band and the distal margin of the hindwing are merged into a black patch as in *Melinaea cocana* The costal margin and apex remain red-brown. The yellow oblique band of the forewing is narrower than in *polymnia,* at the apex there is mostly a yellowish spot. This form occurs both on the Amazons and in Guiana and Venezuela.

messenoides.
deceptus.
meterus.
nigroapicalis.
mazaeus.
phasianita.
lucifera.

In **M. messenoides** *Fldr.* (33f) the black patch of the hindwing also occupies the whole costal margin, moreover the base of the forewing is also black, and the yellow subapical spot is absent. This species corresponds exactly to *Melinaea messenina.* On the eastern slopes of the Andes, from Colombia to Peru. — Just as in the *Melinaea* there is also in the *Mechanitis* a form without the yellow oblique band of the forewing, namely **deceptus** *Btlr.* (= mothone *Salv.*). This is deceptively similar to *Melinaea mothone.* It occurs on the Upper Amazon in Ecuador, Peru and Bolivia. But there are also transitions to the preceding form, in which yellowish colour is present at the discocellular of the forewing. — In **meterus** *Hew.*, also from the Upper Amazon, a form which is otherwise marked like *deceptus,* there are 2 more round yellow spots at the distal margin of the forewing. — In **nigroapicalis** *Hsch.* the base of the forewing and the costal margin of the hindwing are red-brown. In many specimens the median band of the hindwing and the distal margin are completely separated. — **mazaeus** *Hew.* (34a) has in addition a red-brown patch in the apex of the forewing. — In **phasianita** *Hsch.* this subapical spot is very large and the black marking in the apex is considerably less extended, so that this form has much the appearance of *Melinaea phasiana.* It occurs like *mazaeus* on the Upper Amazon and its tributaries in Peru and Ecuador. — **lucifera** *Hsch.* again forms a transition to the forms with yellow oblique band and subapical spot. The marking is as in *phasianita,* but the subapical spot and the oblique band are yellow, with brownish margin. This form, which may be recognised by the strikingly large subapical spot, likewise occurs on the Upper Amazon in Peru.

visenda.

M. visenda *Btlr.* has a narrower, yellow oblique band on the forewing, which does not reach to the end of the cell; on the other hand broader, black bands at the inner margin of the forewing and in the disc of the hindwing, as well as narrow distal margin to the hindwing. It flies on the Lower Amazon and Tapajos.

fallax.

M. fallax *Btlr.*, from Colombia, has likewise a narrower, yellow oblique band and small black spots at the discocellular of the forewing, as in *messenoides Fldr.* The costal margin and apex of the hindwing are red-brown. The black median band is confluent with the distal margin.

egaënsis.
obscura.
plagigera.

M. egaënsis *Btlr.* (34a), from Ega on the Upper Amazon, has dark red-brown ground-colour. The oblique band is large and one half of it brownish. The black spot at the base is large and wedge-shaped. The hindwing has broad median bands and strongly dentate dark distal margin. — **obscura** *Btlr.* is a very dark form of *egaënsis* with broader black bands and occurs at the same localities. — In **plagigera** *Btlr.* the black bands and patches are much narrower than in *egaënsis;* the subapical spot is smaller and yellow, like the more elongated band of the forewing. From Prainha on the Amazon.

truncata.
juntana.
huallaga.
olivencia.
jurimaguënsis.

M. truncata *Btlr.* belongs to a small group with shorter wings, in which the apex of the hindwing is almost truncate. It has a pattern like *egaënsis.* The wings are red-brown, the black streak at the inner margin of the forewing is long. In the apex of the forewing is placed a large yellow spot with brown margins. The form varies very much and flies together with *egaënsis* and *obscura* near Ega. — **juntana** *Hsch.* (34a) has a very narrow, strongly dentate yellow band on the forewing, a similar black median band and very narrow margin to the hindwing. The ground-colour is light yellow-brown. The form flies in eastern Ecuador and Peru, at the base of the Andes. It is at times very common at flowering shrubs. — A nearly allied form is **huallaga** *Stgr.* (34a), from eastern Peru. It bears, however, a greater resemblance to *phasianita* and *olivencia* on account of the absence of the yellow markings and the smaller extent of the black ones on the forewing. It is easy to recognise by the narrow distal border of the hindwing. — The similar **olivencia** *Bates* has broader, black bands and patches, as well as a yellow spot at the discocellular of the forewing. It occurs likewise on the Upper Amazon. — **jurimaguënsis** *Stgr.* has lighter, red-brown ground-colour than *olivencia* and the yellow spot at the discocellular of the forewing is absent. The median band of the hindwing is broadly dentate and sometimes confluent with the broad distal margin.

proceris.

M. proceris *Weym.* This small species has the appearance of *juntana.* It may, however, be recognised by the black distal margin of the hindwing being broader and the black streak at the inner margin of the forewing terminating obtusely. From Tonantins on the Upper Amazon.

doryssus.

With **M. doryssus** *Bates* (33f) we pass to another group of forms which are distinguished by long, narrow wings and mostly inhabit Central America or the adjoining north-west of South America. They have mostly a similar pattern as in the preceding forms, i. e. on the forewing *doryssus* has in the black apical half an undulate yellow oblique band and a subapical spot. The basal half of the forewing and the hindwing are red-brown; the former with 2 black spots and black margins, the latter with narrow median band and distal margin. In Central America, from Costa Rica to Honduras. — *utenaia.* Reakirt designates as **utenaia** a form from Honduras in which the oblique band of the hindwing is broken up into 2 spots. — *veritabilis.* **veritabilis** *Btlr.* is the form from Colombia and Venezuela, with narrow wings. Here the club of the antenna is yellow-brown, in *doryssus* only the base is dark. The ground-colour of the wings is darker. This form flies also on Trinidad. — *saturata.* **saturata** *Godm. & Salv.* is a similar, larger form from Mexico with very narrow yellow bands in the forewing, broader black apex and large basal spots. — *labotas.* **labotas** *Dist.* is a very light form from the volcano Chiriqui with yellow colour at the end of the cell of the forewing and partly also at the base of the hindwing. Especially striking is the ♀ of this local form, in which the black median band of the hindwing is only indicated at the apex, and is sometimes entirely absent.

lycidice. **M. lycidice** *Bates* (34 a). Smaller than *doryssus.* The forewing black with 3 yellow oblique bands, and also red-brown base and 2 red-brown spots at the inner angle. The hindwing has broader, black median band and before it an indistinct yellow longitudinal band. In the ♀ the black band is proximally incomplete. In Central America, from Costa Rica to Honduras. — *eurydice.* **eurydice** *Hsch.* is a similar form from Peru. The black marking in the disc of the forewing is reduced. The yellow subapical spot is prolonged into a band. The median band is narrower and more strongly dentate. The hindwing has a broad yellow longitudinal band and in the ♀ also the black macular band is complete. Antenna yellow-brown with dark base, in *lycidice* dark with yellowish club. — *doryssides.* **doryssides** *Stgr.* is very similar to the preceding, but has no yellow longitudinal band in the hindwing and the spots in the disc of the forewing are brownish yellow. — *ovata.* **ovata** *Dist.*, from Costa Rica, has broader and more roundish wings than *lycidice.* The macular bands of the forewing are narrower. The black longitudinal band of the hindwing is only present in the apex and the yellow marking before it is entirely absent. — *isthmia.* In **isthmia** *Bates* (34 b), from Panama and Costa Rica, the black colour occupies almost the whole of the forewing. The yellow median band is broken up into 2 spots. The black median band of the hindwing is very broad; yellow colour is absent. In the ♀ the median band is only indicated by a spot before the apex. — *arcana.* In a form from Honduras, which I call **arcana** *form. nov.*, the hindwing has a broad yellow longitudinal band and also in the ♀ a complete black band behind it. — *californica.* **californica** *Reak.* In this form from California the yellow spot on the discocellular of the forewing is said to be much narrower than in *isthmia*; behind the end of the cell a yellow band runs from the costal to the hindmargin.

mantineus. **M. mantineus** *Hew.* (34 c) is a species very different from the preceding forms, which is distinguished by the almost complete absence of red-brown, even on the hindwing, and by the absence of the yellow subapical spot in the forewing. The forewing has only one red-brown spot at the inner angle and the hindwing a fine red-brown line before the distal margin. In addition to the yellow median line the forewing has 2 yellow spots and a streak on the median vein. The hindwing has a yellow longitudinal band. This interesting species, which recalls *Heliconius nattereri*, occurs only on the western slopes of the Andes in Ecuador, but is not rare.

franis. **M. franis** *Reak.* (33 f) and the two following forms are nearly allied to *polymnia caucaënsis.* The ground-colour of *franis* is reddish yellow-brown. The large yellow median spot in *caucaënsis* is here separated by a black macular band into 2 parts, of which the proximal one is partly yellow-brown. — *peruana.* In the form **peruana** *Weym.* the median band of the forewing is confluent with the distal margin; hence there remains of the yellow-brown ground-colour only a longitudinal band pointed towards the apex in the otherwise black-brown wing. — *menapis.* In the form **menapis** *Hew.* (33 f) the black colour is still further increased, so that often only 2 small red-brown spots at the base of each wing remain. Almost all transitions between the 3 forms are found. They fly in Colombia, especially in the Cauca Valley.

elisa. **M. elisa** *Guér.* has the forewing similar to that of *isthmia;* the two yellow spots at the end of the cell of the forewing (the remains of the oblique band) are here still further reduced and are placed near to the costal resp. distal margin. On the other hand the two spots in the disc are enlarged. The zigzag band of the hindwing and the distal-marginal band are narrow. On the Upper Amazon and its tributaries in Ecuador, Peru and Bolivia. — *menecles.* **menecles** *Hew.* is a form from the Amazon with small yellow spots in the forewing and a small red-brown spot below the yellow one near the inner angle. The hindwing has only the beginning of the median band in the apical area. — *ocona.* In **ocona** *Druce* (= vilcanota *Röb.*) (34 b) the ground-colour in the ♂ is lighter yellow-brown. The yellow spots and the costal margin of the hindwing are semitransparent. Between the two oblong yellow spots at the end of the cell and the distal margin is placed another oblong yellow spot, so that here the usual oblique band is restored. The typical specimens come from the Upper Amazon, from Peru. At the Upper Napo in Ecuador the form is similar to *elisa*, except that in the forewing the yellow double spot of *ocona* is still present.

In the following forms the two proximal yellow spots of the forewing are united into a broad oblique band; the median band is only indicated by a few dots or is entirely absent.

macrinus.

M. macrinus *Hew.* (= ♀ numerianus *Fldr.*) (34 b) has mostly 3 oblong yellow spots in the black apical third of the forewing as a remnant of the oblique band at the end of the cell. Between the median and its first branch is generally placed another, triangular black spot, especially in the ♂. The latter has moreover in the disc of the hindwing above a black longitudinal band, which is indicated beneath and in the ♀ only at the apex, or the black band is entirely absent beneath also. This species is deceptively similar to *Heliconius metaphorus*, with which it also occurs together. The examples from Colombia are distinguished by large black spots in the basal part of the forewing and broad black longitudinal band on the hindwing; those from Panama and Costa Rica have narrower wings, spots and bands. The specimens from Ecuador on the other hand have a bright yellow oblique band and small yellow spots in the forewing; the black spot at the median is mostly absent.

nessaea. *sulphurescens.* *lysimnia.* *albescens.*

M. nessaea *Hbn.* (34 b) differs from *macrinus* in the yellow longitudinal band of the hindwing and the two yellow dots at the end of the cell and the distal margin of the forewing. The species is especially common in Central Brazil. — **sulphurescens** *Hsch.*, from Bahia in Brazil, forms the transition to the following subspecies. It differs from *nessaea* in the absence of the two yellow median dots; from *lysimnia* in the yellow instead of white subapical spot. — **lysimnia** *F.* (34 b) is distinguished from *nessaea* by the white subapical spot and the absence of the yellow median dots in the forewing. — In ab. **albescens** *Hsch.* there is a white triangular spot at the distal margin of the forewing and on the under surface the subapical spot is surrounded by a white macular band, which shows through above. — The larva of *lysimnia* is blue-grey with white tubercles and black stigmata. Pupa shiny gold-yellow, with a silver gloss on the ventral side, and with black dots and lines. — *lysimnia* is one of the commonest species of *Mechanitis* and flies principally in Central and South Brazil.

13. Genus: **Aprotopos** *Kirby.*

Aprotopos is distinguished from the very similar *Thyridia*, as *Mechanitis* from *Melinaea*, by the aborted forelegs, from *Mechanitis* by the shorter cell. The species of this genus may be recognised superficially by 1—2 red-brown dots at the base of the forewing.

The few species have mostly a wide distribution, but are almost everywhere only taken singly.

melantho. *randolis.*

A. melantho *Bates* (34 c). This Central American species differs from all the others in the intense colouring of the wings. The normally vitreous spots of the forewing are almost entirely covered with black. The hindwing is dark red-brown with black distal margin and spot at the end of the cell. — In a form from the volcano Chiriqui, which I call **randolis** *form. nov.*, the whole apex of the hindwing as far as the end of the cell is black-brown except for a small red-brown streak.

aedesia.

A. aedesia *Dbl. & Hew.* (34 c) has the same scheme of markings as *melantho*, but the vitreous spots of the forewing are much larger and especially at the base yellow-brown. The disc of the hindwing is likewise light yellow-brown, not so red-brown as in the figure. The black spot at the end of the cell is connected with the costal margin. Especially in Colombia and Venezuela.

ceto.

A. ceto *Fldr.* (= colombiana *Godm. & Salv.*). This rare species has the markings as in *psidii*, on the other hand a brownish ground-colour similar to *aedesia*. Colombia.

psidii. *ino.*

A. **psidii** *L.* (34c). The similarity of this species to *Thyridia confusa* has been already mentioned under the latter. It occurs in Guiana and on the Lower and Upper Amazon, to the Andes of Peru and Ecuador. Specimens from the first named districts have broader black margins and bands; those from Ecuador and Peru have been designated **ino** by FELDER.

hippodamia *pallida.*

A. hippodamia *F.* (= pytho *Fldr.*), from Central and Southern Brazil, is a very similar, but smaller species with broader bands on the forewing and narrower ones on the hindwing. — **pallida** *Godm. & Salv.* is a form with brownish vitreous spots, similar to *ceto*; in Central Brazil.

14. Genus: **Callithomia** *Bates.*

In the species of this genus not the lower discocellular but the middle one is angled. The cell is long and extends almost to the margin. They are mostly medium-sized species, which occur especially in the north-west of South America and also in Central America.

hezia. *hedila.*

C. hezia *Hew.* (36 b) has very broad wings and strongly recalls *Hirsutis pinthias* in the marking. There occur here as there also the corresponding varieties, in which a yellow macular band is present on the hindwing. *hezia* is the commonest form, from Central America, with black-brown, yellow-spotted forewing and red-brown hindwing with dark apex. — **hedila** *Godm. & Salv.* is a form from Guatemala with larger, partly confluent yellow spots in the forewing. On the hindwing the black marking is broader and occupies nearly *tridactyla.* half the wing. — In **tridactyla** *Dew.* (36 b), from Colombia, there is a yellow macular band behind the discocellular of the hindwing, similar to that of *Hirsutis hecalesina,* and the base of the hindwing is black-brown.

phagesia. **C. phagesia** *Hew.* (36a), from Ecuador, has similar markings; at the base of the forewing there is a red-brown stripe, and the spots are larger and dirty white. In the hindwing the area before the apex is transparent whitish.

megaleas. **C. megaleas** *Godm. & Salv.,* from Panama, is said to have in the forewing a red-brown base, 6 yellow submarginal spots and a yellow oblique band. The hindwing is red-brown with narrow black distal margin.

schulzi. **C. schulzi** *Hsch.* (36 b), from the Lower Amazon, has large yellow spots in the forewing, and the basal third red-brown. The hindwing has a median macular longitudinal band and large marginal teeth with yellow *alexirrhoë.* dots. In the ♂ the anterior half of the hindwing is transparent yellowish, in the ♀ red-brown. — In **alexirrhoë** *Bates,* from the Upper Amazon, near S. Paulo, the ground-colour is darker red-brown. The hindwing is *zeuxippe.* not yellowish-transparent and the marginal dots are white. — **zeuxippe** *Bates,* from the Cupari (a tributary of the Amazon), has at the base of the forewing broad black margins. The apex is dark brown, with 3 yellowish *thornax.* spots and red-brown margins. — **thornax** *Bates,* from the Upper Amazon, near Tabatinga, has blackish apex with 4 yellowish spots and 6 brownish marginal spots. Hindwing with black teeth at the distal margin. — *butes.* **butes** *Godm. & Salv.,* from the lower Napo in Ecuador, is said to be similar to the preceding, but to have yellowish spots in the apex of the forewing and a broad, dentate black distal margin to the hindwing. — *philomela.* **philomela** *Godm. & Salv.,* from Colombia, is said to approximate to *zeuxippe,* but to have narrower forewing, whilst the hindwing is semitransparent with black apex. The black macular band is placed nearer to the lower end of the cell. — The last 5 forms all intergrade more or less with one another, being apparently local forms still in course of development, so that it is very difficult to refer the transitional specimens to the individual *infuscata.* forms. — On the Ucayali in Peru there is further a peculiar form, which I call **infuscata** *form. nov.* Here the forewing is yellow-brown with dark margins and in addition to the black median spot in the cell a roundish spot is placed in the end of the cell and 3—4 oblong spots in the apical third. The hindwing has 2 macular bands, in the disc and at the anal angle. This form recalls *Hyposcada rezia.*

hydra. **C. hydra** *Fldr.* (= valera *Stgr.*), from Venezuela, has blackish forewing with 3 yellow macular bands *beronilla.* and brownish base. The hindwing is red-brown with dark distal margin. — In the somewhat larger **beronilla** *Hew.* (36 c), from Colombia and Ecuador, the central macular band is absent and the proximal one is not divided *panamensis.* by a triangular black spot, as in *hydra.* — The nearly allied **panamensis** *Godm. & Salv.,* from Panama, has a broad yellow oblique band, in which several roundish black spots are placed. The hindwing is broadly black at the apex and distal margin.

procne. **C. procne** *Godm. & Salv.,* from Colombia, is said to have the apex of the forewing black as far as the end of the cell, and a broad yellow oblique band, which is divided by a red-brown stripe over the 2. median vein.

villula. **C. villula** *Hew.* (36 c). This interesting species has exactly the markings and colouring of certain *Ceratinia,* e. g. *praxilla* and *ocna*; but it may be recognised by the angled middle discocellular, resp. not angled lower one. On the under surface the hindwing has a white double spot at the costal margin near the middle and 6 white distal-marginal dots. Colombia.

15. Genus: **Ceratinia** *Hbn.*

This genus contains numerous species of very varied appearance, mostly of medium size. It may be recognised by the very long cell of the forewing (especially in the ♂) with angled lower discocellular, yet there are differences in the neuration even in specimens of the same species. The species of this genus occur from Mexico to Brazil and Argentina. Many forms of the plains are at times very common, whilst others from the valleys of the Andes are quite local and rare. The wing-pattern and colouring in *Ceratinia* is very varied. Although the *Lycorea*-habitus predominates, yet there are also many forms with vitreous or otherwise marked wings, so that similarities to almost all the markings which occur in other Ithomiid-genera may be found.

polymnides. **C. polymnides** *Hsch.* The marking is similar to that of *Mechanitis polymnia,* with broad yellow median band, without subapical spot on the forewing and with 2 black-brown zigzag bands in the disc and at the anal angle of the hindwing. Upper and lower surface are without distal-marginal dots. In Central *menans.* Colombia. — In **menans** *Hsch.,* from the same localities, the forewing has moreover 6 yellow distal-marginal dots, which are largest in the apex. In the ♂ the costal margin of the hindwing is lighter and transparent.

C. amica *Weym.*, from Colombia and Ecuador, is similar to *polymnides*, but has only 3 black dots in the disc of the hindwing and a narrow black distal margin. The yellow transverse band of the hindwing is only half as broad. — The similar **baana** *Druce*, from Peru, is said to be distinguished among other details by white marginal dots on the under surface, which are wanting in *amica*. *amica.* *baana.*

C. mansuetus *Hew.*, from the Upper Amazon, has similar markings to *moebiusi* following hereafter. The wings are shorter and more rounded. The forewing has in addition 3 yellow dots at the distal margin and the hindwing 4 black spots in the disc, whilst the narrow distal border is strongly dentate at the inner angle. In specimens from Peru the yellow dots on the forewing are absent. — **moebiusi** *Hsch.* (34 d) has a broad yellow oblique band in the forewing. At the inner angle of the hindwing there is a large black band-spot and at the end of the cell 2 more isolated spots. *mansuetus.* *moebiusi.*

C. honesta *Weym.* (34 d) is a similar species with differently formed oblique band and rounded black spot in the hindwing. Of the two black spots at the end of the cell of the forewing the one at the costal margin is here the longer, in *moebiusi* just the reverse is the case. This species flies on the eastern slopes of the Andes of Ecuador, whilst the local form **bicolora** *Hsch.*, in which the yellow oblique band is absent, occurs still further east, on the upper Rio Napo. The latter resembles, besides the larger *Melinaea mothone* and *Mechanitis deceptus*, especially *Hyposcada fallax* and *Ceratinia semifulva*. *fallax* is recognised at once by the large black antennae and the short cell of the hindwing; *semifulva*, in addition to its smaller size, by the dark base of the forewing and only 2 black spots at the end of the cell. *honesta.* *bicolora.*

C. mamercus *Hew.* is similar to *mansuetus*, but smaller, with broader, short, distally convex yellow oblique band. The black median band of the hindwing and the distal border, which is broad at the inner angle, are united at the inner margin. In some specimens median band and distal border are joined into a large patch. Flies on the eastern slopes of the Andes of Ecuador. — Thence comes also the similar **aemilia** *Hew.*, with narrower oblique band and yellow marginal spots in the apex of the forewing. At the inner angle of the hindwing is placed a distally divided black spot. *mamercus.* *aemilia.*

C. manaos *Bates* is similar to *mamercus* and *rowena*. Yellow band of the forewing extending into the cell. Hindwing with 2 black macular bands. From the lower Rio Negro. — **rowena** *Hew.* is a smaller form from Colombia with narrow yellow oblique band, double spot at the end of the cell, long wedge-spot and broad streak at the base of the forewing, as well as large double spots at the inner angle of the hindwing. — In **achaea** *Hew.*, from eastern Ecuador, which is of the same size, the oblique band is divided into 2 spots at the end of the cell and the inner angle of the forewing. The hindwing, including the costal margin, is for the most part black-brown, only the apex is red-brown. — **semifulva** *Salv.* (34 d) has already been mentioned under *bicolora*. It is the local form of *achaea* or a nearly allied species, without the yellow oblique band on the forewing. It occurs, like all the similar forms, in eastern Peru and Ecuador, together with **occulta** *Hsch.*, which has 3 more yellow spots in the apex of the forewing and white distal-marginal dots on the under surface. *manaos.* *rowena.* *achaea.* *semifulva.* *occulta.*

C. apollinis *Stgr.* (34 d) approximates to *aemilia*, but has larger yellow subapical spots in the forewing and a large black spot at the inner angle of the hindwing. It flies on the Upper Amazon near Iquitos. *apollinis.*

C. viola *Hsch.* (34 e) has a distally lobed yellow oblique band in the forewing, dark distal margin and spot at the end of the cell of the hindwing. The ground-colour is dark brown-red. It flies on the Upper Amazon, together with the similarly coloured *Melinaea satevis* and *madeira*. — In the local form **boliviensis** *Hsch.* the ground-colour is lighter red-brown; the hindwing has a dark median band and broader distal margin. — **herbita** *Weym.*, from Surinam, has a similar yellow oblique band, and on the hindwing the median band and distal margin dark. *viola.* *boliviensis.* *herbita.*

In **C. catilla** *Hew.* (34 e) the apex is broadly black to the end of the cell, then follows proximally the yellow oblique band. The broad black distal margin of the hindwing is united at the apex with the median band. The ground-colour is dark red-brown. Bolivia. *catilla.*

C. cantobrica *Hew.* (34 e) has yellow spots at the apex and distal margin of the forewing and also a curved yellow macular band. The distal border of the hindwing is narrower. The ground-colour is red-brown. The habitat is Bolivia. — In the smaller **pamina** *Hsch.* the yellow spot is narrower and also proximally margined with black. The yellow marginal dots are absent. This form comes from the frontier districts of Peru and Bolivia. *cantobrica.* *pamina.*

C. pyrippe *Hpffr.*, from Peru, is a form with broad yellow oblique band in the forewing and narrow streak-like longitudinal band in the hindwing. — In **tenna** *Hsch.* (34 e) on the other hand the oblique band is narrow, the dark distal margin of the hindwing broader. Eastern Ecuador. — In **napona** *Hsch.*, which is the same size, the oblique band of the forewing is broken up into 2 spots; the two black basal spots are larger; the distal margins have yellow marginal dots. — In ab. **calva** *Hsch.*, which also flies on the upper Napo, the black longitudinal band in the disc of the hindwing is absent. In the ♂ the anterior third of the hindwing is semitransparent. *pyrippe.* *tenna.* *napona.* *calva.*

nina. **C. nina** *Hsch.* is larger than *napona* and has a complete undulate transverse band in the forewing; *callanga.* further 2 yellow spots near the end of the median. Bolivia. — In **callanga** *Hsch.* (34 e) the yellow oblique band and the spots at the end of the cell have assumed the red-brown ground-colour. There is sometimes, especially on the under surface, another red-brown oblique band in the apex of the forewing. This form occurs at the boundary of Peru and Bolivia near Yungas.

fenestella. **C. fenestella** *Hew.* (34 e) is a form similar to *nina*, with yellow oblique band and broader longitudinal *intermedia.* band on the hindwing; from Venezuela. — **intermedia** *Btlr.*, from eastern Colombia and Ecuador, has the oblique band as in *fenestella*; above yellow marginal dots, beneath white ones. Hindwing with abbreviated *peruviana.* longitudinal band. — In **peruviana** *Stgr.*, from Peru, the hindwing in the ♂ is transparently yellowish at the *hemimelas.* costal margin, in the ♀ the marginal spots are yellow beneath. — In the form **hemimelas** *Stgr.*, from Chanchamayo, the distal border and the longitudinal band of the hindwing are merged into one patch. — The Central *valora.* American form of *fenestella*, from Costa Rica, which I call **valora** *form. nov.*, is larger and has very large, oblong yellow spots in the apex of the forewing. On the upperside of the hindwing the white marginal spots are absent.

ninonia. **C. ninonia** *Hbn.* (34 f) is a smaller species and occurs in typical examples chiefly in Guiana and on the Lower Amazon. The disc of both wings is transparent in the ♂, but on the hindwing more brownish than in the figure. The yellow transverse band of the forewing is very broad. The yellow marginal dots are rather *bari.* large in this and the following forms. — Bates describes as **bari** a form from Tocantins and Tapajos, which *completa.* is said to have a narrower hindwing and paler, yellow spots. — In the larger **completa** *Hsch.* (34 f), from the Upper Amazon, the yellow oblique band is only half as broad and does not extend into the cell. — In the *maculata.* form **maculata** *Hsch.*, from the Lower Amazon, the band is divided into 2 yellow spots. This large local form *latefasciata.* has very broad wings and large yellow marginal dots. — In **latefasciata** *Hsch.* the black spots at the end of the cell of the forewing are small, hence the yellow oblique band is very broad. It flies on the Upper Amazon, *philidas.* whilst the similar **philidas** *Godm. & Salv.* has its habitat in Colombia. The latter has a much broader black median band on the hindwing and no yellow marginal dots on the upper surface of the hindwing.

mutilla. The very similar **C. mutilla** *Hew.* (34 f), from British Guiana, has a pale yellowish oblique band and in addition a red-brown spot towards the apex. The longitudinal band of the hindwing is mostly very broad. *pellucida.* — In ab. **pellucida** *Hsch.* the black spots at the end of the cell and the distal margin of the forewing form a broad band; the longitudinal band of the hindwing, on the contrary, is narrower. This form flies together with the preceding.

vallina. A similar form, from Venezuela, which I call **C. vallina** *spec. nov.*, is larger and has very broad wings. The longitudinal band of the hindwing is narrow and placed very far distad, so that the semitransparent discal area becomes very large.

granadensis. **C. granadensis** *Hsch.* stands rather isolated, only to some extent recalling *philidas*. The yellow oblique band is very broad and in it are placed at the end of the cell the two black spots, which are here very small, whilst the third in the end of the cell is very long and wedge-shaped. At the apex and again at the distal margin there are 2 white dots. The hindwing is as in *philidas*, with narrower black longitudinal band. In Central Colombia.

maenas. **C. maenas** (*Bang-H. i. l.*) (34 f) has the pattern somewhat like that of *latefasciata*, but the yellow transverse band of the forewing and the yellow marginal dots are absent. It flies with the similarly coloured forms of other genera on the Upper Amazon.

antonia. **C. antonia** *Hew.* (34 g) has a yellow-brown ground-colour and different yellow macular band. The *antonina.* yellow marginal dots are very large, but smallest in the apex of the forewing. — In the similar **antonina** *Stgr.*, from the Upper Amazon, it is just the reverse, the marginal dots are largest in the apex, moreover the macular band is much smaller, proximally edged with black. *antonia* from western Ecuador differs moreover in the longitudinal band of the hindwing, the spots of which are largest at the apex.

fimbria. **C. fimbria** *Hew.*, from Colombia, has a broad yellow oblique band on the forewing, which is divided by a black macular band, so that there is a large yellow patch at the inner angle. The marginal dots of both *nemea.* wings are white. — In the similar **nemea** *Weym.* (34 g), also from Colombia, the yellow band is narrower and differently formed. The hindwing is not transparent as in *fimbria*.

philetaera. **C. philetaera** *Hew.* (34 f) may be recognised by the large yellow median spot on the forewing and the broad black distal border of the hindwing. In the distal margin of the forewing and mostly also of the hindwing are placed yellow dots, among them 2 larger ones in the apex of the forewing. The habitat of this easily recognised species, which resembles *Melinaea idae*, is Colombia.

leprieuri. **C. leprieuri** *Feisth.*, from Cayenne, has similar hindwing, which is black also at the costal margin, and white marginal dots. The yellow median spot is distally rounded; the black spots at the end of the cell are joined rectangularly with the spot at the median.

ignorata. **C. ignorata** *Hsch.* (34 f) has similar markings, but yellow marginal dots on the forewing, and the hindwing is red-brown, with black, yellow-dotted distal margin and black longitudinal band. This species flies *michaëlisi.*

on the Upper Amazon. — In the local form **michaëlisi** *Hsch.*, from the Lower Amazon, the yellow patch is divided by a black oblique band from the discocellular to the inner angle.

cornelia. *sellana.*

C. cornelia *Guér.*, from Bolivia, has a narrow yellow oblique band on the forewing and 4 yellow spots in the broad black distal margin of the hindwing, as well as a black spot at the apex. — In the similar **sellana** *Hsch.* the oblique band is divided into 2 spots; the middle marginal dots are absent in the forewing. The distal margin of the hindwing is proximally widened into teeth.

fulminans. *satura.*

C. fulminans *Btlr.* (34 g) has a narrow yellow oblique band, strongly angled distally. The black spot at the end of the cell is proximally forked. The hindwing has a narrow distal border and a longitudinal band of 3 black spots in the disc. The ground-colour is light yellow-brown. — This form from Colombia is represented in eastern Ecuador by the dark red-brown **satura** *Hsch.* In this the yellow colour is wanting in the end of the cell of the forewing and at the apex of the hindwing.

angelina.

C. angelina *Hsch.* (34 g), from the Ucayali (tributary of the Upper Amazon) has the pattern similar to that of *fulminans.* But the yellow marginal band and the distal-marginal dots are absent. The apex is more narrowly black, on the other hand the macular band in the disc of the hindwing is much broader, partly confluent with the dentate distal margin.

soror.

In a smaller species, **C. soror** *Srka.*, which is confusingly like *Melinaea lucifer*, the oblique band is likewise absent. The apex of the forewing is, however, more broadly black and the yellow spots in it are merged into one large one. In the hindwing longitudinal band and distal margin form a large black patch, as in *Melinaea lucifer.* This interesting species comes from Pebas on the Upper Amazon.

acceptabilis.

The description of **C. acceptabilis** *Weeks*, from Bolivia, has unfortunately not been obtainable.

anastasia. *anastasina.* *castanea.*

The large, broad-winged **C. anastasia** *Bates* has the pattern similar to **anastasina** *Stgr.* (35 a), but behind the end of the cell of the forewing another yellow zigzag band, like that of *fulminans*, and 7 yellow marginal dots. *anastasia* flies in the damp primeval forests near Ega on the Upper Amazon, whilst *anastasina* occurs further up at the foot of the Andes in Peru. — **castanea** *Btlr.*, from Rio Juruá, is a darker form of *anastasia*, in which the yellow oblique band reaches to the hinder angle of the forewing. These 3 forms closely resemble *Melinaea maëlus* (= *pardalis Bates*) resp. *cydon.*

porsenna.

C. porsenna *Srka.* (= amabilis *Stgr.*) is similar to *anastasius* in size and markings. The yellow apical spots in the forewing are much larger and proximally edged with black. On the hindwing the median band and the dark distal margin are united into a large patch. — This form flies, like the similar *soror*, on the Upper Amazon near Pebas.

fluonia. *berna.*

In **C. fluonia** *Hew.* and the allied forms the anterior half of the yellow oblique band of the forewing is curved distad, as may be seen in the figure of *berna* (34 g). *fluonia* has a four-branched, yellow macular band, which enters the cell and nearly reaches the inner margin. The black double spot at the end of the cell has also a corresponding curved projection towards the apex, as in *pardalina* (34 g). The hindwing is like that of *berna. fluonia* flies on the Upper Amazon, whilst the local form **berna** *Hsch.* (34 g) comes from the upper Napo in Ecuador. The latter has instead of the large macular band in the forewing only 2 oblong yellow spots in the black apical area.

pardalina. *tigrina.* *pantherina.*

C. pardalina *Hpffr.* has a yellow oblique band in the forewing. The aberration figured (34 g) was described by Druce as **tigrina.** In the latter only a yellow spot at the discocellular remains of the band. Otherwise the marking and colouring is similar in both forms. Of the black colour in the apex of the forewing only marginal dots remain in *fluonia*, whilst in the hindwing the black median band and the distal border are widened. The species resembles the respective local forms of *anastasia* and *Melinaea maëlus.* Both forms fly on the Upper Amazon in Peru; *tigrina* may, however, occur further up. — **pantherina** *Stgr.*, likewise from the Upper Amazon, is an intermediate form between *fluonia* and *pardalina*, in which red-brown spots appear in the apex of the forewing. The black median band of the hindwing is as in *fluonia.*

thea. *theatina.*

C. thea *Hew.* recalls *catilla* (34 e), but the yellow median spot is rounder and does not extend so far to the hinder angle. In a smaller form, which Staudinger named **theatina** (i. l.) (35 a), the yellow spot is likewise rounder than in the figure. This form is, however, considerably smaller, has lighter ground-colour, and at the end of the cell of the forewing there are only 2 small, black spots, whilst in *thea* a large black spot extends into the yellow and is joined to the black costal and distal margin. The hindwing has in both forms a black distal border and median band, which sometimes touch at the apex. They fly on the Upper Amazon and its tributaries.

xanthostola. *desmora.*

C. xanthostola *Bates* (35 a) stands completely isolated. The hindwing is much shorter than the forewing, which is not brought out clearly in the figure. In this the species recalls some *Napeogenes*-species. Very striking moreover is the absence of the median band on the upper surface of the hindwing, as is also the case in *Mechanitis macrinus.* In an aberration, which I have described as **desmora** *Hsch.*, the black spot at the base of the forewing above is absent and the black bordering at the proximal side of the yellow spot is much narrower. Both forms fly on the Middle Amazon.

dionaea. fraterna. limpida. **C. dionaea** *Hew.* I only know in typical specimens from Central America (Honduras, Guatemala), on the other hand in Venezuela a local form occurs which I designate **fraterna** *form. nov.* (35 a). In *dionaea* there is proximally to the yellow oblique band a larger yellow spot which is joined to the red-brown basal part. In *fraterna* there is instead only a small spot which is mostly confluent with the oblique band, but is proximally edged with black. Moreover, in *fraterna* the yellow colouring is brownish and the distal-marginal dots are smaller. In *Mechanitis* there are 2 corresponding forms: *doryssus* from Central America and *veritabilis* from Venezuela. — **limpida** *Hsch.* is a peculiar form of *fraterna,* in which the yellow bands and spots are very broad and transparent; a stripe at the costal margin of the hindwing is of the same colour. This interesting local form recalls *Mechanitis franis* and flies like the latter in the Cauca Valley in Colombia.

mergelena. megalopolis. In **C. mergelena** *Hew.* (35 a), from Colombia, the median band of the hindwing is reduced to a black spot at the apex, which is connected with the broad black distal border. At the base of the forewing there is further a proximal yellow oblique band, which is divided by a large, triangular black spot. — In **megalopolis** *Fldr.*, likewise from Colombia, this black spot is absent, so that a broad yellow oblique band is formed, as in *Mechanitis macrinus.* The yellow spots at the end of the cell on the other hand are small, and also the white marginal dots on the hindwing.

callispila. cleis. mylassa. leucania. **C. callispila** *Bates* (35 a), from Costa Rica, has a black-brown forewing with numerous yellow spots and red-brown base. The hindwing is red-brown with dark distal margin, blackish apex and spot at the end of the cell. — In **cleis** *Bates,* from Panama, the yellow spots in the disc of the forewing are much smaller. The distal margin of the hindwing and the spot at the end of the cell are united into a large patch in the apical third. — As **mylassa** Druce describes another form, from Veragua, with broad black apex and distal margin to the hindwing, which, however, are not confluent with the spot at the discocellular. — **leucania** *Bates,* from Panama, is similar to *callispila,* but has white spots in the forewing which form an oblique band at the end of the cell. The hindwing has dark distal margin and a narrow longitudinal band.

decumana. excelsa. **C. decumana** *Godm. & Salv.* (= centralis *Stgr.*) (35 b). This fine, large species and especially the local form **excelsa** *Fldr.* recall the similar *Ituna lamirus* and *Olyras montagui.* The markings resemble those of *callispila*; the yellow spots are larger and transparent. On the hindwing the spot at the end of the cell is absent. In *decumana* the base of the forewing is black-brown, whilst *excelsa* has a red-brown stripe along the median vein. Moreover, the hindwing on the upper surface of *decumana* is uniformly red-brown in the disc, in *excelsa* a transparent oblique band runs from the apex to the inner margin. *decumana* flies in Panama and Costa Rica, whilst *excelsa* comes from Colombia. — Stichel erected the genus *Oreogenes* for these two forms, but the characters in the neuration are not constant.

vallonia. daëta. euryanessa. daëtina. evanescens. laphria. With **C. vallonia** *Hew.* (35 b) we come now to a group which is distinguished by a broad, transparent band in both fore- and hindwing. The forms are all indigenous to eastern South America, especially Brazil. In *vallonia* the yellow oblique band of the forewing forms a semicircle. In the cell is placed a triangular black spot. The band of the hindwing is transparent red-brown. The antennae are yellowish, with dark base. The species occurs on the Upper Amazon and in Guiana. — In the somewhat larger **daëta** *Bdv.* and the following forms the band of the hindwing is yellow, antennae dark with yellow club. The apex of the forewing in *daëta* is broadly black with 3 large white dots. At the hinder angle is placed a red-brown spot, whilst in the very similar, but larger **euryanessa** *Fldr.* (35 b) this angle is black. The latter form has very delicate, transparent colouring, even in the apex of the forewing. The black oblique band before the end of the cell of the forewing is posteriorly broad and dentate, in *daëta* posteriorly reduced. Finally in *daëta* and the following forms the base of the hindwing beneath is yellow, but in *euryanessa* red-brown. The two forms occur together in numbers in central and southern Brazil in the dense virgin forests. — Larva and pupa of *euryanessa* according to Seitz are stout. The pupa is rounded, yellow-brown, darker at the wings, adorned all over with small black wavy markings. — **daëtina** *Weym.* is a very rare form of *daëta* with dark mahogony-brown ground-colour and broad black bands and margins. In addition to the two yellow bands there is a yellow spot on the discocellular of the forewing. — As **evanescens** (= melphis *Hbn.*) I designate a very light, transparent form of *daëta.* Not only the very broad, light yellow band of the hindwing, but also the whole disc of the forewing is transparent yellowish. The red-brown colour is confined to the base and a spot at the hinder angle of the forewing and also a narrow stripe at the distal margin of the hindwing. — **laphria** *Dbl.* (35 b) is another very similar species from central Brazil. Size and markings as *daëta,* but not transparent. The white spots in the apex of the forewing smaller. Across the end of the median a further black streak. The eggs of *laphria* are laid in clusters on the leaves of a Solanaceae. The young larvae are yellow-brown with dark head; later they have 3 dark dorsal stripes which are connected by transverse lines. The pupa is short and stout with metallic surfaces at the sides. The pupal stage lasts about 11 days.

melphis. **C. melphis** *Godt.*, from the Antilles, which is unknown to me in nature, is said to have black forewing with 3 pale yellow-red bands and 3 white dots in the apex. The hindwing is yellow-red with black costal and distal margins, and also a median band, which does not reach the distal margin.

mysotis. As **C. mysotis** *spec. nov.* I designate a species from Venezuela similar to *evanescens*, with shorter wings, in which the red-brown colouring is absent except for the spot at the hinder angle. The hindmargin of the forewing is broadly blackish to the median. Both wings have white marginal dots.

fiammetta. **C. fiammetta** *Hew.* is a peculiar, rare species from South Brazil of the size and pattern of *laphria*. On the forewing the red-brown colour only extends from the base to 1/3, behind it there are 2 transparent spots apically before the yellowish band. On the hindwing the red-brown is entirely absent; this is transparently yellowish, with broad black distal margin and small white marginal dots.

metella. **C. metella** *Hpffr.* (35 b, c) (= alexia *Druce*), from eastern Peru, has in the ♂ transparent yellowish wings with black margins and a half-band at the end of the cell of the forewing. The base of the forewing and the proximal half of the hindwing are reddish yellow-brown. Both wings have small white distal-marginal dots. In the ♀ the wings are scarcely at all transparent, much more brightly coloured, with broader, black margins. The disc of the hindwing is red-brown. *oulita.* — In the similar **oulita** *Hew.* the base of the forewing is blackish, and the black margins are broader. It occurs further south at the boundary of Peru and Bolivia. *trimaculata.* — **trimaculata** *Weym.* is a form from Colombia with very broad black costal and distal margins to the hindwing, so that in the ♀ only a smaller, yellow-red spot is present at the inner angle.

norella. The ♂ of **C. norella** *Hew.* has a deep black basal half to the forewing, in which a yellow spot is placed at the end of the cell. In the ♀ the whole forewing is black except for the yellow spots in the disc and the white marginal dots. The form occurs only in the valleys of the Andes of Ecuador, south-east of Cuënca. *norellana.* — In the allied **norellana** *Hsch.*, from the upper valley of the Napo in Ecuador, the base of the hindwing is not yellowish and the reddish colour only extends to the end of the cell. The part between this and the broad distal margin is transparent blackish. This rare form occurs in open places in the primeval forests, where it is fond of hovering round single trees at a few metres from the ground or resting upon projecting branches. *nora.* — **nora** *Hsch.* is another allied form from Peru. Here the forewing is as in *norellana*, the base transparent. The black spot at the end of the cell is isolated. The hindwing is only reddish at the anal angle, as in *lurida* (35 c), the distal half is transparent yellowish.

lurida. **C. lurida** *Btlr.* (35 c) is marked like *nora*, but has white dusting instead of the yellow colour in the disc of the forewing and at the end of the cell of the hindwing; also the underside of the abdomen is whitish, in the preceding form yellow. *tricolor.* — The smaller **tricolor** *Salv.* has similar markings to *oulita Hew.*, but also white instead of yellow colour. In the ♀ there is an oblong white patch at the end of the cell of the hindwing. — Whilst in *tricolor* the black spot at the end of the cell of the forewing is broadly connected with the costal margin, *florens.* in an otherwise very similar form, which I call **florens** *form. nov.*, there is only a narrow, isolated streak at the end of the cell. — The last three forms are found at the boundary of Peru and Bolivia.

In the following species the wings are almost entirely vitreous.

ocna. Some, as **C. ocna** *H.-Schäff.* (35 c), have still a small red-yellow spot at the anal angle of the hindwing. The base of the wing is yellowish. This species flies singly in eastern Colombia and Ecuador. *adelinda.* — **adelinda** *Hew.*, from Ecuador, is a very similar form, with broader, black distal margin, without white marginal dots on the upper surface.

praxilla. **C. praxilla** *Hew.* is an allied, somewhat larger species from eastern Ecuador, without yellow colour at the anal angle of the hindwing. In contrast to *ocna* and most of the allied forms, *praxilla*, *coeno*, etc., have black antenna and a white spot at the base of the hindwing beneath, the former a yellow streak and yellow club to the antenna.

guttata. *coeno.* **C. guttata** *Weym.* is a form of **coeno** *Hew.* (35 d). It has a red-yellow spot at the anal angle of the hindwing. *coeno* itself, from Colombia and Venezuela, has the basal half of the hindwing dusted with yellow. In the ♂ the black distal margins are narrower. *latilimbata.* — ab. **latilimbata** *Weym.* is a form of *coeno* with broad black margins and large white marginal dots, from Colombia.

frater. In **C. frater** *Salv.*, from Peru, the wings are dusted with whitish, and at the anal angle is placed a smaller yellow patch.

cana. In **C. cana** *Hsch.*, from Colombia, the wings are dusted with whitish, the yellow patch is absent. On the other hand a blackish band runs across the middle of the cell of the forewing.

statilla. **C. statilla** *Hew.* (35 c) is distinguished from the very similar *frater* by the yellow club of the antenna and yellow underside of the abdomen, which is grey in *frater*. The end of the cell of the forewing is without markings, *atagalpa.* whilst in **atagalpa** *Hsch.* a blackish band is placed across the end of the cell of the forewing. Both forms come from eastern Peru.

antea. **C. antea** *Hew.* (35 d), from Ecuador, the largest species of the genus, has colourless wings with broad black margins and small, white distal-marginal dots. The club of the antenna, base of the hindwing beneath and underside of the abdomen are yellow. On the high bank of the upper Pastaza this interesting species was found rather commonly among immense trees, together with the very similar *Napeogenes glycera* and *lycora, Ithomia linda, Hypoleria coenina, Threnodes coenoïdes*, etc.

eupompe. The last species of this extensive genus, **C. eupompe** *Geyer* (= phlysto *Fldr.*) (35 d), from South Brazil, stands quite isolated, much more recalling certain species of the genera *Napeogenes, Ithomia* and *Pteronymia.* The wings are short, transparent yellowish, with black margins and a half-band across the end of the cell of the forewing; on the under surface with rows of red-brown spots and whitish double spots. Antenna black, collar red-brown. — Larva according to W. Müller rather transparent, above grey-green, head yellow, later black. Pupa transparent green, with shiny gold lines and black spots.

16. Genus: **Heteroscada** *Schatz.*

This genus contains only 2 small, yellowish forms, which occur in Brazil. The middle discocellular of the hindwing is weakly curved proximally, the upper one in the ♂ is long.

gazoria. **H. gazoria** *Godt.* (= yanina *Hew.*) (36 d). This pretty little species is very similar to *Pteronymia hemixanthe* (40 d). The collar is red-brown, the abdomen beneath yellow. The wings are dusted with yellow to beyond the end of the cell and have dark margins.

fenella. The somewhat larger **H. fenella** *Hew.* has broader borders, a broader half-band across the end of the cell of the forewing and a red-yellow spot at the base. It closely resembles *Napeogenes xanthone.* — Both species fly in Central Brazil.

17. Genus: **Napeogenes** *Bates.*

In this extensive genus there are many forms whose pattern and colouring recur in certain Ithomias, so that they can only be recognized by the neuration. All the *Napeogenes* may be distinguished from the similar species of other genera by the non-angled discocellular, the long cell and the apparently 5-branched median in the hindwing. — The species are scattered over the whole Neotropical region, mostly mixed with the corresponding species of other genera, but are usually rare, whilst the more vigorous Ithomias are met with in large numbers.

peridia. *hemimelaena.* **N. peridia** *Hew.* (35 d), from Colombia, has similar markings to *Callithomia tridactyla* and *Hirsutis hecalesina*; the hindwing is, however, distinguished by large yellow distal-marginal dots. — In **hemimelaena** *Godm. & Salv.*, from Panama, the yellow spots at the end of the cell of the forewing are united into one large one, as in *iquitensis* (35 d). The yellow spots at the apex and distal margin of the hindwing on the contrary are very small and the apical half consequently much more strongly coloured with black.

iquitensis. **N. iquitensis** *Stgr.* (35 d), from the Upper Amazon, has in the black apical half of the forewing a broad, curved, yellow band; in the red-brown basal half 2 black spots and on the red-brown hindwing a black macular band and dentate distal margin.

amara. **N. amara** *Godm.* (35 d), from Central America, is smaller than *peridia* and has in the apical part of the forewing fewer, but larger, yellow spots, and at the base a red-brown spot. The marginal dots are smaller and white. At the apex of the hindwing are placed 2 indistinct yellowish spots. — In the somewhat larger *tolosa.* **tolosa** *Hew.* (35 e) the ground-colour of the hindwing and the base of the forewing are lighter yellow-brown. The yellow spots of the forewing are larger, the distal border of the hindwing narrower. *tolosa* inhabits Mexico and northern Central America.

olyrina. The interesting and rare **N. olyrina** *Hsch.* (35 e), from Bolivia, recalls *Ceratinia excelsa* and *Olyras montagui.* The black forewing has large whitish vitreous spots, the red-brown hindwing bears in addition to the broad, dark marginal band a hyaline oblique band in the apical half, as in *excelsa.*

larina. **N. larina** *Hew.* (35 e), from eastern Colombia, has white spots on the forewing; of the marginal spots those in the apex are larger; the base of the forewing is red-brown. In the disc of the hindwing are placed 3 isolated black spots. *Ithomia candescens* is very similar.

aethra. **N. aethra** *Hew.* (35 e), from the upper Napo in Ecuador, has larger, band-like, yellow spots in the disc of the forewing and indistinct yellow marginal dots. The hindwing is dark-margined, with 4 black spots in the disc.

duessa. **N. duessa** *Hew.* (35 e) may be recognised by the chestnut-brown ground-colour and the two black half-bands at the apex of the hindwing. The forewing has a yellow median spot with black dot and a dark brown base. This peculiar species flies on the Upper Amazon in Peru and Ecuador.

quadrilis. In **N. quadrilis** *Hsch.*, from the Upper Napo, the ground-colour is yellow-brown and the yellow median spot of the forewing is prolonged, forming an oblique band. In the dark-margined hindwing a large black-brown spot is placed at the inner angle.

terastis. zurippa. otaxes. pyrrho. deucalion.

The following 5 forms are all very nearly allied; they have the usual ground-colour with black apical half and black cell-spot on the forewing, also dark dentate marginal band on the hindwing and 3—5 black spots in the disc. — **N. terastis** *Hsch.* (35 e) has a yellow median and subapical band on the forewing. — It is the form from the Lower Amazon, whilst in **zurippa** *Hew.*, from Bolivia, the median band is broken up into 2—3 spots. — **otaxes** *Godm.*, which, like the two following forms, occurs in Peru, has a pale, yellowish median band and in the apex 2 dots of the same colour. — **pyrrho** *Druce* has still the yellow subapical band, but the median band is absent. — In **deucalion** *Hsch.* the subapical band is also absent except for 2 yellow dots.

hygia.

N. hygia *Godm.*, from Surinam, which is unknown to me in nature, is said to resemble *Mechanitis polymnia.*

stella. glabra. aster. decora.

N. stella *Hew.* (35 f). In this small species and its local forms from eastern Colombia and Ecuador the blackish colour in the distal half of both wings is almost entirely suppressed by the yellowish vitreous spots. *Calloleria jolaia* has a very similar pattern and can only be distinguished by the neuration. — In the somewhat larger **glabra** *Godm.*, from Colombia, the wings are still more transparent and the marginal dots yellow. The inner margin of the forewing is black. — **aster** *Godm.*, from Ecuador, has darker wings and smaller marginal dots. — In the similar **decora** *Godm.* the margins of both wings are much broader. The forewing has a dark streak through the cell.

larilla.

N. larilla *Hew.* (35 f), from Ecuador, has vitreous wings with dentate, dark distal borders and a spot at the end of the cell on each wing. In the ♀ the wings are broader, the margin of the forewing red-brown and the white marginal dots on the hindwing much larger. This rare species recalls *Velamysta pardalis* and *Dismenitis theudelinda,* with which it occurs in the mountain forests up to heights of 2500 m.

cranto. paedaretus.

N. cranto *Fldr.* (35 f), from Colombia, has the margins and a half-band across the end of the cell of the forewing dark brown. The base of the forewing and the hindwing are dusted with yellow. — The similar **paedaretus** *Godm. & Salv.*, from Costa Rica, is more brightly coloured and has yellow-brown veins, also at the apex and the dark costal margin of the forewing 2 oblong yellow spots. In the ♀ the base of the forewing is dark and the hindwing is yellow-brown.

harbona.

In the smaller **N. harbona** *Hew.* (35 f), from Ecuador, the wings are colourless, the margins black above and red-brown beneath, with indistinct, white marginal dots.

apulia. nausica.

N. apulia *Hew.* (35 f), from Colombia, has a pattern like *Ceratinia ocna,* with red-brown spots at the inner angle of the hindwing. — In the somewhat larger **nausica** *Weym.*, from Ecuador, the distal border of the forewing is broader, the inner border narrower. The red-yellow spot at the inner angle does not reach the base.

lycora.

N. lycora *Hew.* (35 g), from eastern Ecuador, is similar to *apulia,* but the red-yellow colour at the inner angle of the hindwing is absent; the base of the latter is slightly yellowish. Moreover, the club of the antenna is yellow.

glycera.

N. glycera *Godm.* (35 g) is confusingly like *Ceratinia antea,* but is somewhat smaller and the abdomen is grey-white beneath, in *antea* vivid yellow. It flies together with the similar forms on the upper Pastaza in Ecuador.

eunomia.

N. eunomia *Godm.*, from Peru, corresponds to the similar *Ceratinia frater* from the same country. The black margins are narrower, the base of the hindwing is yellowish.

flossina. hypsaea.

N. flossina *Btlr.* (35 g), from eastern Colombia and Ecuador, has transparent wings with narrow, dark margins and at the base of both wings yellowish colouring. — A very similar form is **hypsaea** *Stgr.*, from the Cauca Valley in Colombia. In it the veins at the end of the cell of the forewing are not margined with dark, and it is more weakly coloured at the base. The last two forms recall *Episcada paradoxa* and other similar Ithomias.

ithra. potaronus.

The following species, mostly smaller, have a dark oblique band across the end of the cell of the forewing. **N. ithra** *Hew.*, from the Lower Amazon, and **potaronus** *Kaye* (35 f), from British Guiana, have a posteriorly forked, dark oblique band and whitish patch. In *ithra* the wings are slightly reddish, the margins narrow, dark brown, the base of the forewing and the distal margin of the hindwing yellow-red. *potaronus* has colourless wings with broader, dark margins and red-brown spots in the distal margin of the hindwing.

cyrianassa. ercilla. glycon. adulta. dilutata.

N. cyrianassa *Dbl. & Hew.* (35 g), from the Amazons and Colombia, may be recognised by the teeth of the black oblique band towards the apex. Hence the yellow oblique band is correspondingly sinuate. The hindwing has a broad, dark-edged, yellow-red submarginal band. — In **ercilla** *Hew.*, from the Upper Amazon, the subapical band of the forewing is white and divided into spots. — **glycon** *Godm.*, which is unknown to me in nature, is said to be similar to *cyrianassa,* but with a triangular, black spot in the cell of the forewing. — **adulta** *Hsch.* and **dilutata** *Hsch.* are local forms of *cyrianassa* from British Guiana. *adulta* is larger and more brightly coloured. The base of the forewing is red-brown nearly to the end of the cell. In the apex is placed a row of red-brown dots. The red-brown band of the hindwing is broadly margined with black-brown. *dilutata* has narrower wings and yellow-brown ground-colour, which is extended beyond the end of the cell of the forewing and also borders the distal margin.

inachia. *moles.* *tunantina.* *adelphe.* **N. inachia** *Hew.* (35 g) is very similar to *cyrianassa,* but the projection is absent at the end of the cell of the forewing, which is more transparent yellowish at the base. The antenna is dark. — In the local form **moles** *Hsch.*, from British Guiana, all the margins and borders are broader. The disc of the hindwing is yellowish. The wings are short and broad. — **tunantina** *Bates,* from the Upper Amazon, is said to be similar to *cyrianassa,* but with oval subapical spot on the forewing, so that the black oblique band at the end of the cell is continued to the distal margin in the same width. — **adelphe** *Bates,* from the Lower Amazon, is likewise said to be very similar to *cyrianassa,* with less transparent wings. Apical spot of the forewing almost uniformly broad. The black oblique band gradually narrowed.

pheranthes. **N. pheranthes** *Bates,* from the Upper Amazon, is said to be similar to *inachia,* but with black collar and patagia, which are red-brown in the other forms.

pyrois. **N. pyrois** *Bates,* from the Lower Amazon, is likewise similar to *inachia,* but has no yellowish brown in the forewing. The anterior half of the hindwing, moreover, is yellowish.

corena. **N. corena** *Hew.* (36 b), from the Upper Amazon, as well as from eastern Peru and Ecuador, may be recognized by the broad, yellow-brown subapical band of the forewing, which is quite similar also in species of other genera, e. g.: *Dismorphia erythroë, Leucothyris ilerdina, lubilerda, Hypoleria sarepta* and others.

lamia. **N. lamia** *Hew.* resembles *Scada ethica* (36 d), but is appreciably larger and has larger white marginal dots, especially in the hindwing, as well as a non-forked band over the end of the cell on the latter.

galinthias. A similar form is **N. galinthias** *Hpffr.*, from Bolivia, in which the dark marking over the end of the cell of the hindwing is absent.

rhezia. **N. rhezia** *Hbn.* recalls *Ceratinia laphria,* but the black spot in the cell of the forewing and the white marginal dots on the upper surface are absent. The species occurs in Brazil.

xanthone. *richardi.* In **N. xanthone** *Bates* (= yanetta *Hew.*) (36 b), from southern Brazil, the red-brown colouring on both wings is absent except for 2 streaks at the base of the forewing. — ab. **richardi** *Fruhst.*, from Central Brazil, on the other hand has stronger red-brown markings at the base of the forewing and in the distal margin of the hindwing.

leptalina. **N. leptalina** *Fldr.*, from Central Brazil, has similar markings to *xanthone,* but without red-brown at the base of the hindwing. It recalls *Dismorphia methymna.*

crispina. **N. crispina** *Hew.*, from Colombia, has a reddish base to the forewing and a dark spot at the costal margin at one-half the length of the cell. The black distal margin is proximally dentate on the veins.

benigna. In **N. benigna** *Weym.*, from Colombia, there is a reddish streak over the median of the forewing and the half-band on the discocellular is broad at the median.

sulphurina. **N. sulphurina** *Bates* (= chinia *H.-Schäff.*, pozziana *Oberth.*) (36 a) is a yellowish, dark-margined species from the Amazons and Brazil, recognizable by the black streak over the median at the base of the forewing and 2 white dots in its apex, as well as by the black antennae.

osuna. *azeka.* *gracilis.* **N. osuna** *Hew.*, from Bolivia, has broad black margins and in addition to the transverse band across the end of the cell of the forewing an interrupted band across that of the hindwing, as well as a band through the cell of the forewing. — In **azeka** *Hew.* (35 g) the markings are similar, but more delicate. The bands through the cell of the forewing and across the end of the cell of the hindwing are here only indicated by the absence of the yellow dusting (which is not brought out well in the figure); also the oblique band at the end of the cell of the hindwing is quite narrow from the middle onwards. Colombia and Ecuador. — **gracilis** *Hsch.*, from Bolivia, is similar to the preceding, with narrower margins and broader half-band across the end of the cell of the forewing, and without the band through the middle of the cell and across the end of the cell of the hindwing.

pteronymiensis. **N. pteronymiensis** *Hsch.*, from Colombia, has a colourless forewing and a yellow-dusted hindwing with dark margins spotted with yellow-brown beneath and a half-band of the same colour across the end of the cell of the forewing. Antenna dark with yellow-brown club. Apex of the forewing and distal margin of the hindwing with white marginal dots on the under surface.

elva, **N. elva** *Godm.*, from Colombia, which is unknown to me in nature, is said to have transparent wings with the margins blackish above and reddish beneath.

pharo. **N. pharo** *Fldr.* (36 b), from the Upper Amazon, is a commoners pecies, with yellowish vitreous areas and broad black margins, which have yellow-brown stripes beneath. The transverse band of the forewing is gradually pointed. The antennae are black. — In the similar **avila** *Hsch.*, from eastern Ecuador, the club of the antenna is yellow-brown, the wings are narrower and the forewing has beneath 7 white marginal spots, in *pharo* only 3—4 apical spots. — **crocodes** *Bates*, from the Upper Amazon, differs from the preceding by the black collar and patagia, which in the latter are red-brown. *avila.* *crocodes.*

N. thira *Hew.*, from Peru, has the size and markings like **sylphis** *Guér.* (36 a), from Bolivia, but a red-yellow stripe in the distal margin of the hindwing. On the under surface both forms have yellow-brown, dark-edged margins and 2 white dots in the apex. *thira.* *sylphis.*

The similar **N. verticilla** *Hew.* (36 a) has only a dark half-band across the discocellular and towards the apex a smaller, white patch. — **sodalis** *Hsch.*, which occurs together with the preceding at the boundaries of Peru and Bolivia, is similarly marked. It has, however, a yellow base to the costal margin of the hindwing beneath, whilst in *verticilla* this is yellow-brown like the other margins. *verticilla.* *sodalis.*

18. Genus: **Sais** *Hbn.*

This small genus contains only a few forms of scarcely medium size, which are all very nearly allied and occur in northern South America, but are mostly not common. The species may be recognized by the long cell of the hindwing with feebly angled middle discocellular and by the strongly aborted forelegs of the ♂♂.

S. paraënsis *Hsch.* (36 c), from the Lower Amazon, has yellow-brown ground-colour; apex and 2 spots at the end of the cell of the forewing, as well as distal margin and median band on the hindwing, black-brown, Forewing with broad yellow oblique band. — **badia** *Hsch.* (= mosellina *Stgr. i. l.*), from the Upper Amazon, is a large local form with chestnut-brown ground-colour and smaller yellow oblique band. — **camariensis** *Hsch.*, from British Guiana, has light yellow-brown ground-colour, a large red-brown spot in the apex of the forewing and a yellow longitudinal band at the median of the hindwing. — In **rosalia** *Cr.*, the oldest form, from Surinam, the apex is not black-brown but like the yellow-brown ground-colour. Otherwise this form is very near to *paraënsis.* — In the larger **virchovi** *Dew.* the apex of the forewing is black-brown and the yellow oblique band very narrow and dentate. — **mosella** *Hew.* (36 c), which likewise comes from Venezuela, has a red-brown spot at the apex of the forewing, whilst the median band of the hindwing is almost entirely absent. *paraënsis.* *badia.* *camariensis.* *rosalia.* *virchovi.* *mosella.*

S. promissa *Weym.* and **zitella** *Hew.* (36 c) have broader wings and a yellow-brown apex to the forewing with black-brown marginal teeth, much as *Ceratinia pardalina.* The spots of the median band and the distal-marginal teeth of the hindwing are merged together in pairs into black stripes, so that streaks of the yellow-brown ground-colour are left between them. Both forms fly on the Upper Amazon, and *promissa* has a large, broad, yellow oblique band, like *paraënsis,* whilst in *zitella* this is short and narrow. *promissa.* *zitella.*

19. Genus: **Scada** *Kirby.*

This genus includes only a few delicate, yellow and black forms, which are almost all very similar and mostly occur in the neighbourhood of the equator. It has the forelegs of the ♂♂ strongly aborted in common with the preceding genus and the superficially similar *Aeria.* It may be recognized especially by the long upper discocellular, which to some extent forms a branch of the subcostal. — In size some forms are inferior even to the true Ithomiids and are hence the smallest of the whole family.

The *Scada*-species mostly occur in the thick undergrowth in the primeval forest, only coming into the open spaces in dull weather, when they are found feeding at small, white star-shaped flowers.

The rare **S. zemira** *Hew.* (36 d), from Ecuador, is the only species which in addition to very broad black markings has also a red-brown double spot at the hinder angle of the forewing. *zemira.*

S. kusa *Hew.* has somewhat narrower margins, it differs from the normal markings in that the oblique band joins the inner margin of the forewing, cutting off a yellow spot at the hinder angle. It flies, like the smaller **ethica** *Hew.* (36 d), in Ecuador. In the latter a yellow spot at the apex of the hindwing is cut off by a blackish transverse band across the end of the cell, as is also the case in *Napeogenes lamia* and *Ithomia derasa* from the same localities. — **excellens** *Srka.* is a local form from Ecuador, in which the black distal margins are almost entirely suppressed, the marginal dots being very large and yellow. — **quotidiana** *Hsch.*, from the middle Napo in Ecuador, approximates to *ethica*; but the characteristic transverse band on the hindwing is absent. *kusa.* *ethica.* *excellens.* *quotidiana.*

S. zibia *Hew.* is a similar species from Colombia and Ecuador with more pointed apex to the forewing and red-brown collar. — **xanthina** *Bates* (36 d) is a similar form with broader, deeper black margins and more vivid yellow. It is the only Central American form; from Panama and Costa Rica. — **amplificata** *Hsch.*, from eastern Colombia, is larger, with broad blackish margins and larger white marginal dots, especially at the apex of the forewing. *zibia.* *xanthina.* *amplificata.*

philemon. **S. philemon** *Fldr.*, from Venezuela, is said to be very similar to *reckia Hbn.*, but to have red-brown collar and patagia.

theaphia. *batesi.* *majuscula.* **S. theaphia** *Bates* (36 d), from the Lower Amazon, is the smallest species of the genus and also of the whole family. Examples occur in which the wing-expanse is less than 30 mm. It has very delicate, yellowish wings and a straight, black oblique band at the end of the cell of the forewing. — **batesi** *Hsch.*, a local form from the Upper Amazon to Ecuador, is larger, more vividly coloured, with broader black margins. — **majuscula** *Hsch.* is a larger form from British Guiana. It has broad deep black margins and very small white marginal dots. On the under surface there is a red-brown streak in the distal margin near the inner angle.

reckia. **S. reckia** *Hbn.*, from northern Brazil, is a smaller species and may be recognised by the absence of the white marginal dots on the upper surface. The yellow ground-colour is only slightly transparent.

ortygia. In **S. ortygia** *Druce* (= garleppi *Stgr. i. l.*), from Peru, the white marginal dots are likewise absent; but it is considerably larger with very long, pointed wings. The dark margins, especially in the ♂, are very transparent; the inner margin of the forewing very broad.

20. Genus: **Dircenna** *Dbl. & Hew.*

With this begins the group of the true Ithomias, in which the lower discocellular of the hindwing forms a sharp angle with the median, so that the cell is short.

In *Dircenna* the palpi are strongly hairy, the cell of the hindwing is short. The forelegs of the ♀♀ are four-jointed. The genus comprises for the most part fine-looking species with transparent wings and short antennae. Representatives of this genus are found almost everywhere from Mexico to Argentina; they are mostly not rare and some, such as *klugi* from Central America and *dero* from Brazil, are among the commonest butterflies of the respective districts.

klugi. *chiriquensis.* **D. klugi** *Hbn.* (36 e ♂, ♀). The ♂ has longer hindwing and more delicate colouring, which is not sufficiently brought out in the figure; the hindwing in the ♂ is yellowish, only at the inner angle yellow-brown, not red-brown, in the ♀ uniformly yellow-brown. Examples from the volcano Chiriqui in Costa Rica, which I therefore call **chiriquensis** *form. nov.*, are distinguished from typical specimens from Mexico, Honduras, etc., by brighter colouring and also by a much broader spot in the cell of the forewing. In the ♂ the distal margin of the hindwing is broadly coloured with red-brown near the dark border and proximally distinctly defined by the transparent basal part.

relata. *olyras.* *lonera.* **D. relata** *Btlr. & Druce*, from Costa Rica, has a blackish base to the forewing, blackish apex to the hindwing and a broad, vitreous oblique band on the hindwing, especially in the ♀. — **olyras** *Fldr.* (36 e) is a very similar, larger and much more brightly coloured form from Colombia, which recalls *Olyras montagui* and *Ceratinia excelsa* by the vitreous oblique band of the hindwing, especially on the underside (which is not visible in the figure) and other markings. In the ♀ the hyaline spots of the forewing and the oblique band of the hindwing are yellow. — **lonera** *Btlr. & Druce* is another, similar form from Costa Rica with blackish spot at the median of the forewing and blackish veins. The disc of the hindwing is colourless. The abdomen is beneath black-brown, not yellow as in *olyras*.

jemina. *bairdi.* *euchytma.* **D. jemina** *Hbn.* (36 e ♂, ♀) has a dark spot in the middle of the cell of the forewing and red-brown inner margin and median. The hindwing in the ♂ is blackish at the inner margin, in the ♀ with spots across the dark median veins. The species varies somewhat, the ground-colour ranging from pale red-brown to yellow; it occurs in Colombia and Venezuela, but is said also to be found in Nicaragua (= jambe *Dbl. & Hew.*). — **bairdi** *Reak.* is said to be similar to *jemina*, with black inner margin of the forewing. The basal half of the hindwing is ochreous, the distal half blackish with black veins. — **euchytma** *Fldr.* (36 f ♂, ♀) has shorter wings and red-brown inner margin. Across the cell runs a forked, black oblique band and through the cell a half-band. The hindwing has broad distal margin. The ground-colour of this wing is yellowish with red-brown veins. In Colombia and Venezuela; common.

visina. **D. visina** *Hsch.* (36 f), from eastern Ecuador, has almost colourless wings with very slight whitish smears, as in *olyras*. The median of the forewing is broadly red-brown.

suna. **D. suna** *Hsch.*, from western Ecuador, is a very similar, smaller species, in which only the club of the antenna is yellow-brown. The spot in the cell of the forewing is linear, as in *marica*. In the ♀ the subcostal of the forewing is also red-brown, as well as the veins in the disc of the hindwing.

marica. *steinheili.* **D. marica** *Fldr.* (36 f ♂, ♀), from Venezuela, and **steinheili** *Stgr.*, from Colombia, are two nearly allied forms with black antennae. In *marica* the patches at the end of the cell and the apex are yellowish, in *steinheili* whitish.

mantura. **D. mantura** *Hew.* (36 g) may be recognized by the broad band across the end of the cell of the forewing to the distal margin. In this it recalls some *Thyridia* and *Aprotopos.* Bolivia.

loreta. **D. loreta** *Hsch.* (36 g), from Ecuador, is a similar, larger species, without the band in the hindwing.

xanthophane. **D. xanthophane** *Hpffr.*, from Peru, has narrower, dark margins and vivid sulphur-yellow veins in the disc of the hindwing, as well as a yellow base on the underside of the wing.

dero. *rhoeo.* **D. dero** *Hbn.* (= celtina *Burm.*) (36 g ♂, ♀) is somewhat smaller, with short, yellowish club to the antenna. The band across the middle of the cell of the forewing is somewhat curved. In the ♀ the margins and bands are broader. Southern Brazil to Paraguay and Argentina; very common. — **rhoeo** *Fldr.* is an allied form from northern Brazil, with ochre-yellow colour, also on the veins, particularly in the hindwing.

hugia. **D. hugia** *Schaus*, from Bolivia, is said to have yellow-grey wings with brown veins and margins, which are broadest at the end of the veins; with yellow spots at the end of the cell and the distal margin.

honrathi. **D. honrathi** *Srka.* (36 g) is a rare species from Chanchamayo in Peru, with delicate, blackish margins, without spot through the cell of the forewing; with larger, whitish dots at the apex of the hindwing.

vandona. *immaculata.* **D. vandona** *Hsch.* (37 a) recalls the similar species of *Ceratinia, Napeogenes*, etc., by the red-brown patch at the inner angle of the hindwing. The wings are otherwise colourless except for the yellowish base of the hindwing; the dark distal margins sharply defined. It flies together with ab. **immaculata** *Hsch.*, in which the red-brown patch at the inner angle is absent, in the eastern Andes of Ecuador at the upper Pastaza River.

lorica. **D. lorica** *Weym.*, from Guiana, is a smaller, colourless species with narrow, brown margins, without band across the end of the cell of the forewing.

varina. *partita.* The beautiful **D. varina** *Hew.* (37 a), from the eastern Andes in Ecuador, is a very distinct, brightly coloured and rare species. The base of the forewing and the hindwing are delicate red-brown; the apex of the forewing black; across the end of the cell a broad yellow macular band with 3 dark spots: all semitransparent. — In ab. **partita** *Hsch.* the yellow oblique band is broken up into separate spots by a black band across the end of the cell.

pulcheria. **D. pulcheria** *Hew.*, from Ecuador, has the hindwing and the base of the forewing orange-coloured. The greater part of the forewing is blackish with yellow spots in and below the cell.

euteles. **D. euteles** *Ersch.*, from Cayenne, is not known to me.

lenea. *elvira.* **D. lenea** *Cr.* (♀ = melanida *Cr.*) (37 a ♂, ♀), from the north-east of South America, has in the hindwing a peculiar, blackish longitudinal band, which is interrupted at the apex. Between this and the dark distal margin the colour is red-brown, proximally yellow in the ♂, reddish in the ♀. The forewing has a yellow oblique band; the base is red-brown, apex and end of the cell are black. — **elvira** *Weym.* is a very similar form, in which the black and the red-brown band completely surround the apex.

methonella. *xantho.* *hulda.* **D. methonella** *Weym.* (37 a) has yellowish wings with black margins and half-band across the end of the cell of the forewing. Behind the end of the cell of the forewing and in the disc of the hindwing the veins are partly yellow-brown. In the ♀ the margins are much broader and in the cell of the forewing there is a triangular spot at the median. It flies in southern Brazil and Paraguay. — **xantho** *Fldr.*, from Central Brazil, is a similar form with yellow-brown spot in the cell of the forewing, yellow-brown veins in the hindwing and stronger yellow dusting. Larva according to W. Müller on Solanum; the body is cylindrical, without appendages, greenish, the head very large. The pupa is short, at the ventral side strongly convex, transparent green, the greater part with a golden gloss. — **D. hulda** *Fldr.*, from Venezuela, is said to be similar to *xantho*, but larger, with narrower subapical spots in the forewing and without yellow-brown in the cell.

obfuscata. In **D. obfuscata** *Btlr.*, from the Upper Amazon, the base of the forewing is black. The spots at the distal margin yellowish. Hindwing near the base of the inner margin with large, transparent brownish spot and 2 smaller ones at the apex.

zelie. **D. zelie** *Guér.*, from Bolivia, is said to be allied to *dero*, with black margins and band across the end of the cell. Veins at the base of the hindwing yellow.

epidero. *signata.* **D. epidero** *Bates*, from the Amazons, has on the hindwing from the costal to the distal margin a black transverse band, like *Thyridia confusa*; in the cell of the forewing a triangular, black spot is placed at the median. — In ab. **signata** *ab. nov. Stgr. i. l.* (37 b) there are red-brown spots in the black distal margin of the hindwing, sometimes also at the base of the forewing.

21. Genus: **Epithomia** *Godm. & Salv.*

This genus only contains a few forms, which were formerly placed in *Dircenna.* The species are distinguishable especially by the short hairy palpi, the 5-jointed tarsi of the ♀♀, and also by the presence of the upper discocellular in the hindwing. Superficially they resembles some species of *Callithomia*, *Ithomia* and *Calloleria*. Their area of distribution is confined to north-west South America and Panama.

agrippina. *fumantis.*

E. agrippina *Hew.* (= callipero *Bates*, ♀ balboa *Bates*) is the same size as the figured *alpho*. Base of the forewing and the hindwing red-brown, the latter with broad, dark margin. Forewing with 2 yellow oblique bands across the end of the cell and at the apex, as well as a spot between these at the distal margin. The rest of the apical half is blackish, also a spot in the cell. The species flies in Colombia and Panama. — In a form from Colombia, which I call **fumantis** *form. nov.*, the dark margin of the hindwing is proximally spot-like, irregular, widened almost to the cell. The ground-colour is darker. The white marginal spots of the under surface are very large.

alpho. *nikita.*

E. alpho *Fldr.* (37 b) has semitransparent wings with diffuse, yellow-brown colouring and similar markings to *agrippina*. — In a form which like *alpho* comes from Venezuela, there is a median band in the hindwing which is composed of 3 angular, dark spots. I call this form **nikita** *form. nov.*

22. Genus: **Ithomia** *Hbn.*

Formerly most of the small, transparent forms of the family were included under this name. At the present time we understand by it a smaller, but still numerous group whose best distinguishing characters are the large, oval scent-spot of the ♂♂ and the long cell of the hindwing with angled lower discocellular. Very striking in many ♂♂, e. g. *hyala* (37 c), are the large broad forewing and small hindwing; in the latter the costal margin is strongly arched anteriorly by the scent-spot. In the ♀ the cell of the hindwing is cut off rather straight, a vein extending into the cell. The variety of colour and form in this genus is very great; it contains both gay-coloured species which closely resemble certain *Ceratinia* and *Napeogenes* and also inconspicuous, colourless forms, which are mimicked by species in the following genera. The area of distribution of the genus is correspondingly also a very large one, including the whole of the Neotropical Region. North-Western South America, however, produces the most representatives of this, as also of other genera.

heraldica. *plaginota.*

I. heraldica *Bates* (37 b), from Costa Rica, has black-brown forewing with red-brown base, 3 yellowish macular oblique bands and whitish subapical dots. The hindwing is red-brown with dark distal margin. — **plaginota** *Btlr. & Druce* (37 b) is a similar, larger and more brightly coloured form from the same district. In it the yellow subapical and marginal dots are more strongly developed; but of the oblique bands only the distal one and the half of the median band in the cell are yellow. The base of the forewing is more broadly red-brown.

celemia. *lurida.* *candescens.* *splendens.*

In **I. celemia** *Hew.* (37 c), from Colombia, the oblique bands are broken up into smaller spots. The distal margin of the hindwing is broader and in it are placed yellow dots. — **lurida** *Hsch.* is a local form of the preceding from the Cauca Valley in Colombia with very large, band-like spots in the disc of the forewing and large dots in the apex of the forewing and the distal margin of the hindwing. — **candescens** *Hsch.* is a form of *celemia* from Colombia and Venezuela with white instead of yellow spots and dots. — **splendens** *Hsch.* is coloured like *candescens*, but with very large, white spots and dots, corresponding to *lurida*.

iphianassa. *anaphissa.* *panamensis.* *lycaste.* *negrita.* *boucardi.* *pumensis.*

I. iphianassa *Dbl. & Hew.* is a somewhat smaller, very variable species, of which *anaphissa* (37 c), *panamensis* (37 c) and others are merely local forms. *iphianassa*, from Venezuela, best represents the *Lycorea*-habitus and the pattern of the other forms can be derived from it. The scheme of markings is the same as in *anaphissa*, but the base of the forewing and the hindwing yellow-brown. The latter with undulate distal margin and black-brown longitudinal band, bent in hook-shape at the apex. The basal area, especially in the ♂, is lighter yellowish, semitransparent, with dark dots at the end of the cell. The forewing has an indistinct, yellow-brown median band and a yellow subapical band; between them is placed at the distal margin a roundish, yellowish spot. The rest of the apex and 2 spots in the basal part are black-brown; apex with 2 or more whitish marginal dots. — In **anaphissa** *H.-Schäff.* (= pepita *Oberth.*) (37 c), from Colombia, the distal margin of the hindwing and the median band are united into a broad, black distal margin; also the apical half of the forewing is more broadly black with larger, white marginal dots. — **panamensis** *Bates* (37 c), from Panama, has a much broader, dark distal margin to the hindwing, which reaches to the end of the cell. The yellow subapical band of the forewing is entirely suppressed except for 4 very small spots. This form strongly recalls *Mechanitis macrinus*. — **lycaste** *F.* is a very similar form from Kansas in North America with still more strongly black markings. — **negrita** *Reak.*, from California, is another allied form, in which the black median spot of the forewing is enlarged, half of it being on the hindwing. — In **boucardi** *Druce*, from Panama, the yellow median band of the forewing is absent. The whole basal half is yellow-brown with large, black median spot. The broad distal margin of the hindwing and a spot at the end of the cell are black. — As **pumensis** Reakirt designates a form of *iphianassa*, from Venezuela, with larger black spots and red-brown basal part, without the yellow median band. The yellowish spot at the distal margin is very small. The forewing has 3 white dots at the distal margin.

phanessa. alienassa.

I. phanessa *H.-Schäff.* and **alienassa** *Hsch.* (37 d), from Colombia, have transparent yellowish wings. *phanessa* has broad, yellow-brown submarginal distal border to the hindwing and in the cell of the forewing an isolated, triangular spot. In *alienassa* the distal margin of the hindwing is black-brown with red-brown macular streak, and across the middle of the cell of the forewing there is a dark half-band.

cleora.

I. cleora *Hew.* (= chimborazana *Reak.*, spruceana *Bates*) (37 c ♂, ♀), from western Ecuador, was formerly often confused with the preceding two. It may, however, be recognised at once by the long, pointed, black spot in the cell of the hindwing. On the other hand the red-brown colouring varies very much. There are ♂♂ in which this is almost entirely absent and ♀♀ in which the basal half of the forewing and of the hindwing are almost entirely red-brown.

epona.

I. epona *Hew.* (37 d) has transparent smoke-brown wings with darker margins; half-band across the end of the cell of the forewing, as well as median spot in the cell. In the ♀ the distal margin of the hindwing is broader, with whitish dots. The species flies in the mountains of eastern Ecuador at elevations of 1500—3000 metres together with the similar *Dismenitis hewitsoni*.

xenos.

I. xenos *Bates* (37 d) is a similar species with narrower wings, from Costa Rica. The forewing has slightly yellowish patch and a dark half-band through the middle of the cell. The distal border of the hindwing in the ♂ is very narrow. In the rare ♀ the margins and patches are broader, at the median of the forewing and on the hindwing proximally red-brown.

ulla. *dimidiata.*

I. ulla *Hew.* (= radata *Weym.*) (37 e) is another species from Colombia, but with peculiar neuration. Boisduval erected for it the genus *Tagyris*. The forewing is very broad; the discocellulars close the cell in arc-shape and form an acute angle with the very small third section of the median vein. The scent-spot of the hindwing terminates with a neck at the end of the cell, as in *Hypoleria*-species. *ulla* has behind the band at the end of the cell of the forewing a yellowish patch and a yellow-brown subcostal. In the ♀ the margins are broader and there is also a half-band across the end of the cell of the hindwing. — The same neuration is found in **dimidiata** *Stgr.*, from the Cauca Valley and eastern Ecuador. This species has slightly smoke-brown wings with brown margins, but without half-band across the end of the cell and without yellow patch.

mira.

Another similar species is **I. mira** *Stgr.*, from the Amazons, but with different neuration, red-brown subcostal and small spot at the end of the cell of the forewing.

peruana.

I. peruana *Salv.* (= abendrothi *Hpfr.*) (37 d) has transparent, yellowish wings with broad, black margins and half-bands across the end of the cell and through the cell of the forewing. It occurs at Chanchamayo in eastern Peru.

linda. *theuda.*

I. linda *Hew.* (37 d), from Ecuador, has exactly the appearance of *Ceratinia antea* and *Napeogenes glycera*, with which it also flies in company. It is somewhat smaller and the ♂ is conspicuous by the broad costal margin of the hindwing. — **theuda** *Hew.*, likewise from Ecuador, is a very similar species with somewhat yellowish wings and black antenna, whilst in true *linda* the club of the antenna is yellowish.

nigrimargo.

I. nigrimargo *Btlr.*, from Ecuador, approximates to the preceding, but has a red-brown spot at the anal angle of the hindwing and is hence very similar to *Ceratinia adelinda* and other forms.

lagusa. hymettia.

I. lagusa *Hew.*, from Colombia, and **I. hymettia** *Stgr.* (37 d), from the Cauca Valley, strongly recall certain *Napeogenes*-species. The neuration of the ♂♂ almost exactly agrees with that of this genus in the long cell of the hindwing with the lower discocellular only weakly curved proximad. The forms may, however, be recognized with certainty by the scent-spot of the ♂♂ and the recurrent cell-vein in the ♀. In *lagusa* ♂ the basal third of the forewing is black-brown with oblong yellow-brown spot and broad half-band at the end of the cell. In the ♀ the dark margins at the base are narrower, at the apex and at the distal margin of the hindwing on the contrary broader. *hymettia* has colourless wings, broad inner margin to the forewing and yellow-brown streak at the median; further a half-band at the end of the cell and in the ♂ narrow, in the ♀ broad, dark margins to both wings.

ellara. *eleonora.* *beata.* *avella.*

The beautiful **I. ellara** *Hew.* (37 e), from Bolivia, has colourless wings with broad black margins and patches at the end of the cell and in the cell of the forewing, and large, transparent marginal spots. On the under surface the markings are for the most part brown-red. The antenna has a yellow-brown club. — The very similar **eleonora** *Hsch.*, from the border of Peru and Bolivia, has narrower distal margins, without the transparent marginal spots, but at the costal margin of the forewing a suggestion of a subapical band, and also black antenna. — In an aberration, which I call ab. **beata** *ab. nov.*, there is a large, yellow-brown spot in the distal margin at the inner angle of the hindwing above. — **avella** *Hew.* (♀ = cesleria *Hew.*) (37 e), from Colombia, is a similar, smaller species with red-brown subcostal to the forewing and without the dark colouring in the cell of the hindwing. The ♂ has considerably narrower margins and patches than the figured ♀.

hyala.

The ♂ of **I. hyala** *Hew.* (37 e) is conspicuous by the broad forewing and small hindwing. The wings are slightly smoke-brown with dark margins and 2 half-bands through the cell and at its end. The base of the hindwing is yellow beneath. In the ♀ the wings have the usual shape, somewhat as in *diasia*.

diasia. **I. diasia** *Hew.* (37 f) is a similarly marked species, without the striking forewing of the ♂♂, with glossy bluish wings margined with black. On the under surface the margins in this species are also black in exceptional cases except for the costal margin of the hindwing, which is brown and at the base yellow.

ossuna. As **I. ossuna** *spec. nov.* I designate an interesting species from Colombia, which is similar in pattern and colouring to the preceding species except for the distal margin of the forewing. This is much widened before the inner angle and red-brown.

hippocrenis. **I. hippocrenis** *Bates,* from southern Central America, is similar to *diasia,* but has a much broader spot at the end of the cell of the forewing and also a white patch, as well as red-brown margins on the under surface. — *morena.* **morena** *Hsch.* is another similar form from western Ecuador. The wings are colourless; the markings as in *diasia,* only the half-band in the cell is reduced, and the margins are beneath red-brown with dark edges.

aelia. **I. aelia** *Hew.* (= centromaculata *Weym.*) (37 g) has whitish-dusted forewing with dark margins and veins, as well as broad band across the end of the cell of the forewing. The hindwing is light red-brown with dark costal and distal margins. This rare species flies in Eastern Colombia.

jucunda. **I. jucunda** *Godm. & Salv.*, from Panama, has similar forewing, but colourless hindwing with broad, black-brown distal margin and a red-brown spot in it near the inner angle. The species thus recalls *ossuna* and is distinguished by the absence of the half-band in the cell of the forewing. — *galata.* **galata** *Hew.*, from Colombia, is also similar, with narrower band at the end of the cell of the forewing, and moreover yellow-brown, dark-edged distal margin to the hindwing.

patilla. **I. patilla** *Hew.* (= psyche *Bates*) (37 f), from Central America, has a black-brown apical half to the forewing with a large white subapical patch; the base and the hindwing are colourless, with dark red-brown margins. — *leila.* **leila** *Hew.*, from Mexico, is larger, with broader bands and spots, and white dots in the apex of the forewing and at the distal margin of the hindwing.

terra. *terrana.* *vulcana.* **I. terra** *Hew.* (37 f), as well as **terrana** *Hsch.* and a third form, which I call **vulcana** *form. nov.*, may be recognized by the broadly dark-margined veins at the end of the cell of the hindwing. *terra* is one of the most widely distributed and commonest Ithomias; it occurs in north-western South America, from Colombia and Venezuela to Bolivia. The wings are transparent, shiny bluish, with triangular, black spot at the end of the cell of the forewing and small white spots near it at the costal margin. The black margins of the upper surface are beneath red-brown with dark edges. Whilst *terra* occurs in the eastern part of the Andes in Ecuador, the smaller *terrana* is found in the west. The wings in this form are colourless, with broader margins and large, white patch at the apex of the forewing. On the under surface the colour of the margins is yellow-brown. *vulcana,* from Costa Rica, has the colouring as *terrana,* with narrower, black-grey margins and smaller white patch. In size it is intermediate between *terra* and *terrana.* On the under surface the margins are yellow-brown with fine, dark border. The scent-spot of the ♂ in *vulcana* is yellow-brown, in the other two forms black-brown.

derasa. **I. derasa** *Hew.* (= mellilla *Weym.*, soligena *Weym.*) (37 f) has dark-shaded veins at the end of the cell of the hindwing, like the very similar *Napeogenes lamia* and *Scada ethica,* which species likewise have yellow-dusted wings. *derasa* was described by Hewitson from Nicaragua. But I find no difference between it and the form described from eastern Ecuador by Weymer as *soligena.* — From thence also comes *travella.* **travella** *Hsch.*, which is similar to the preceding; but the dark marking at the end of the cell of the hindwing is absent and the band at the end of the cell of the forewing is broader. — *salapia.* **salapia** *Hew.* (37 f) has the wings more weakly dusted with yellow and broader, black margins, without white dots in the anal margin and with red-brown central line in the margins of the underside.

drymo. **I. drymo** *Hbn.* (= diaphana *Cr.*, phono *Geyer*) (37 g ♂, ♀) is a small, inconspicuous species, common in Brazil, with colourless, dark-margined wings and broad half-band across the end of the cell of the forewing. At the costal margin follows a small, white spot. In the ♀ the margins are somewhat broader and across the end of the cell of the hindwing is placed a triangular, dark spot. — *napho.* **napho** *H.-Schäff.* (= phono *Hew.* p., naxo *Oberth.*), from Colombia, is a very similar form with slightly smoke-brown wings and without the spot at the discocellular of the hindwing in both sexes. — *pellucida.* **pellucida** *Weym.* is also a very similar species with longer oblique band at the end of the cell of the forewing. It is said to occur both on Trinidad and in Brazil.

agnosia. **I. agnosia** *Hew.* (37 f), from Colombia and Venezuela to Peru, is a common species with similar markings to the preceding, but distinguishable by the large, white patch at the end of the cell of the forewing.

pseudo-agalla. **I. pseudo-agalla** *Reb.* (37 g), from western Ecuador, has smoke-brown wings with dark margins; yellow spot at the end of the cell and yellow-brown median vein on the forewing.

oenanthe. **I. oenanthe** *Weym.* (37 g) has more pointed forewing with brownish margins, which are vivid yellow-brown on the under surface. The half-band at the end of the cell of the forewing is pointed. It flies in the Cauca Valley of Colombia and is closely allied to *terra.*

salcata. **I. salcata** *Schaus,* from Colombia, is said to have transparent, whitish wings, with black-brown veins and margins. Forewing sparsely scaled with white at the end of the cell and the costal margin. On the under surface the margins are light reddish brown with dark edges; forewing with 3 white apical spots. Hindwing yellowish at the costal margin, at the distal margin with small, white dots.

Whilst in the forms already dealt with the dark oblique band of the forewing was more or less distinctly forked, in the following otherwise similar species it is simple, tapering to a point posteriorly.

amarilla.

I. amarilla *Hsch.* (37 g) has very similar markings and colouring to *travella,* but the oblique band is gradually pointed posteriorly. It flies with the latter on the upper Napo.

aquinia.

I. aquinia *Hpffr.*, from Peru, is very similar to *salapia,* but with a simple oblique band. The 3rd median vein is not darkly coloured.

ardea.

I. ardea *Hew.* (38 a) is very similar to *agnosia,* with the oblique band on the forewing prolonged to the distal margin. It varies much in size and flies in Bolivia.

drogheda.
hamlini.

I. drogheda and **hamlini** *Weeks,* from Venezuela, are not known to me.

23. Genus: **Calloleria** *Godm. & Salv.*

Here belong a number of smaller forms which are almost all nearly allied and have mostly a red-brown ground-colour, with yellow oblique band on the forewing. The neuration of the ♂♂ shows in the hindwing between costal and subcostal on the under surface a raised ridge, as well as an indistinctly angled lower discocellular with very long lower and very short upper divisions, so that it appears almost without angle; moreover with recurrent cell-veins as continuation of the lower radial. In the ♀ the neuration is very similar except for the raised ridge.

The area of distribution extends over northern South America and the Isthmus of Panama to Costa Rica.

dorilla. *azara.* *tutia.* *tosca.* *chanchamaya.*

C. dorilla *Bates* (38 a), from Panama and Costa Rica, has between the red-brown base and the black-brown apex an irregular, yellow oblique band which is connected with a yellow spot placed at the inner margin. The triangular, dark spot in the middle of the cell is mostly only indistinct; on the other hand the two at the end of the cell are very large and connected. In the apex are placed a larger and a smaller yellow spot, as well as several yellow dots at the distal margin. The hindwing is red-brown with dark distal margin and spot at the end of the cell. — The very similar **azara** *Hew.* (38 a), from eastern Ecuador and Colombia, has lighter, narrower wings. The two spots at the end of the cell are smaller than in *dorilla,* so that the yellow oblique band is broader at the costal margin. Only one of the yellow dots at the distal margin is present here. The distal border of the hindwing is broader. — **tutia** *Hew.* (38 a) has even more transparent wings with narrower yellow oblique band and smaller apical spots; between the two appears another large, transparent, yellowish subapical spot. The hindwing has narrow distal margin and a distinct longitudinal band. This form flies in Venezuela and Costa Rica. — **tosca** *Schaus,* from Colombia, is a local form with yellow apex to the forewing and yellow colour between the median band of the hindwing and the distal margin. — **chanchamaya** *Hsch.* has similar markings to *tutia,* without the yellow spots in the apex of the forewing, with stronger, black macular band in the disc of the hindwing and yellowish colouring between the disc and the costal margin. It flies at Chanchamayo in Peru.

hopfferi. *onoma.*

In true **C. hopfferi** *Weym.* the yellow oblique band in the forewing is absent, the specimen figured represents a local form, which I call **onoma** *form. nov.* (38 a). Both forms fly on the Upper Amazon; they may be recognised by the red-brown colour of the large subapical spot of the forewing and resemble *Ceratinia pardalis* resp. *tigrina.* The marking is otherwise similar to that of *chanchamaya.* The distal margin of the hindwing, especially in *hopfferi,* is broken up into several spots.

poecila. *callichroma.* *poecilana.* *azarina.* *nigronascens.*

C. poecila *Bates* (38 a) is a commoner, widely distributed species from Colombia, Ecuador and the Upper Amazon. It has a broad, distally dentate yellow oblique band and at the end of the cell 2 separated, roundish black spots. — **callichroma** is the name given by Staudinger to a form of *poecila* from Ecuador with narrow, yellow band. — In **poecilana** *Hsch.,* from eastern Ecuador, the median band of the hindwing is united with the distal margin into a large, blackish spot. — In **azarina** *Weym.,* also from Ecuador, there is a large black spot in the disc of the hindwing, which reaches to the base. — **nigronascens** *Hsch.,* from the Upper Amazon, has the hindwing black except the apex, which remains red-brown.

selenides.

C. selenides *Weym.* (38 a), from the Upper Amazon, has a yellow oblique band, widened in the middle towards the apex, which is also proximally bordered with black. The broad median band of the hindwing is continuous.

porrecta.

C. porrecta *Hsch.,* from Bolivia, has longer, narrower wings, narrow yellow oblique band, similar to *tutia,* and large blackish spots at the end of the cell. The hindwing has 3—4 sagittate spots in the disc. In the blackish apex of the forewing is placed a lighter, sometimes yellow-brown patch.

robusta. *fuscens.*

C. robusta *Hsch.,* from Bolivia, is the same size as *dorilla.* The narrow, yellow oblique band is broken up into 2 spots. The hindwing is narrow, with dark margin. — In **fuscens** *Hsch,* the oblique band is also broken up into spots, but its colour is the same as the ground-colour: transparent, faintly red-brown. The hindwing has 3 sagittate spots in the disc and narrow, proximally dentate distal border.

singularis. **C. singularis** *Reb.* is a form from western Ecuador with narrow, delicate wings. The yellow oblique band is narrow, not dentate towards the apex, provided with a projection towards the base. The median band of the forewing is broad, shadowy. The antenna is dark with brownish club.

melanoptera. **C. melanoptera** *Hew.*, from Ecuador, is a peculiar form with blackish wings, the cells of which are transparent yellowish brown, as also 3 larger spots at the distal margin of the forewing. On the under surface there are some quadrate reddish spots at the distal margin of the hindwing. It appears to be a melanistic aberration.

nise. **C. nise** *Cr.* (♀ = selene *Cr.*) (38 b ♂, ♀) has a yellowish, broad oblique band in the forewing, reaching to the inner angle, where it is strongly denticulate. The ground-colour in the ♂ is faintly red-brown, in the ♀ dark red-brown. The hindwing has a narrow median band, which is connected with the costal margin in bow-shape and in the ♂ forms the border of a transparent, light longitudinal band. *nise* flies on the Lower Amazon, as well as in Guiana and Venezuela. — *peruensis* **peruensis** *Hsch.* (38 b) is a similar form from the Upper Amazon, from Peru. The ground-colour is light red-brown in both sexes, with transparent longitudinal band at the base of the hindwing. The yellow oblique band of the forewing is still broader, not transparent, with small dark spots at the end of the cell. The dark spot in the cell is very faint. — *espriella.* **espriella** *Hew.*, from Ecuador, is a more strongly coloured form with dark apex to the forewing, without the transparent longitudinal band in the hindwing. — *tarapotis.* As **tarapotis** *form. nov.* I designate a form from the Lower Amazon, in which the yellow oblique band is almost entirely absent except for an indistinct spot at the costal margin. The colour, as in *espriella,* is vivid red-brown to the apex.

radiosa. In **C. radiosa** *Hsch.*, from eastern Ecuador, the apical half of the forewing is blackish, with radiate, yellow macular band. The dark spot at the base is elongate-pointed. The hindwing has a macular median band and dentate, dark distal margin.

cayana. **C. cayana** *Salv.* (38 b), from Guiana, has in the blackish apex a peculiarly formed, yellow oblique band with approximated spot at the inner angle. The spot in the cell is absent. The hindwing has a broad median band and both wings whitish marginal dots.

jolaia. **C. jolaia** *Hew.* (38 b), from Colombia, resembles *Napeogenes stella.* In the disc of the forewing there are a number of yellow spots, and in the distal margin of both wings large, yellow marginal dots; in the cell of the forewing a black, rounded spot and at the apex of the hindwing the commencement of a median band. — *conveniens.* In ab. **conveniens** *Hsch.* the spots in the forewing are united into an angular band at the end of the cell.

doto. **C. doto** *Hbn.* (38 b), from the Lower Amazon, is a very aberrant species with diaphanous wings; the margins and the discocellular of the forewing are margined with dark. The median of the forewing and a broad submarginal band on the hindwing are yellow-brown.

24. Genus: **Hyposcada** *Godm. & Salv.*

It is not possible to differentiate this genus very sharply from *Leucothyris,* as there is a gradual transition in the characters. Thus a number of forms which approximate to one another, as *ilerdina* and *ina,* have been placed in two different genera. I therefore only leave in this genus the forms which are allied to the typical species and place the others with the similar forms of *Leucothyris.*

Hyposcada is distinguishable by the long, thin antennae and the short cell of the hindwing. Costal and subcostal run at a distance from one another. Upper and middle discocellulars of the hindwing are short and almost equal in length. They are medium-sized butterflies of mostly red-brown ground-colour, which recall many species of *Ceratinia.* They occur especially in north-west South America, some also in Central America and are for the most part not common.

adelphina. **H. adelphina** *Bates* (38 c), from Colombia and Panama, has a broad, red-brown base to the forewing and red-brown hindwing with broad black distal margin. The rest of the forewing is black with a large number of white spots. Also at the apex of the hindwing are placed 2—3 white dots. The under surface is similarly marked to the upper. — *virginiana.* **virginiana** *Hew.*, from Mexico and northern Central America, has narrower wings. The red-brown colour of the forewing reaches nearly to the end of the cell and the two white spots there are small and roundish. Especially worthy of note is the under surface, which is brown also in the whole apex of the forewing. — *evanides.* In a third form, from Costa Rica, which I call **evanides** *form. nov.*, the ground-colour of the forewing is black-brown except for two red-brown streaks at the base, and the same beneath. The wings are narrow as in *virginiana,* the white spots as in *adelphina.*

consobrina. **H. consobrina** *Godm. & Salv.* (38 c) is similar to the preceding, with larger, yellowish spots, without the two spots in the end of the cell of the forewing. It flies in eastern Ecuador, at the foot of the Andes.

anchiala. **H. anchiala** *Hew.*, from the Upper Amazon to Peru and Ecuador, has smaller white spots in the black apical half and a black streak at the median of the forewing, as well as black margins to the hindwing and a broad, spot-like median band in the disc.

abida. **H. abida** *Hew.*, from Colombia, is similar, somewhat smaller, without black streak over the median of the forewing, with narrower median band on the hindwing. Both wings have small white marginal dots.

kezia. **H. kezia** *Hew.*, from the Upper Amazon, has the markings like *anchiala*. But in the apex of the forewing there are only three white spots, the others are replaced by an irregular, yellow-brown band at the end of the cell. — *rezia.* In **rezia** *Hsch.* (38 c) the whole apex of the forewing is also yellow-brown except for the three indistinct whitish spots, to each of which a black oblong spot is joined. This form flies on the Ucayali.

fallax. **H. fallax** *Stgr.* (38 c) is an interesting species from Chanchamayo in Peru, which strongly resembles *Ceratinia bicolora* and *semifulva*, as well as the larger *Mechanitis deceptus* and *Melinaea mothone*, by the black wings with broad red-brown bands. But it may be recognised, apart from the neuration, by the long, thin black antenna and the differently placed black spots situated at the end of the cell and in the cell of the forewing.

aesion. **H. aesion** *Godm. & Salv.*, from Panama, is similar to *abida*, smaller, without the white marginal dots and without the median band on the hindwing.

illinissa. **H. illinissa** *Hew.*, from the Upper Amazon, is similar to the preceding, with larger white spots and an additional one in the cell of the forewing. The red-brown hindwing has in addition to the dark border a black submarginal band, curved correspondingly to the distal margin.

similia. In **H. similia** *H.-Schäff.* (38 d) the whole base of both wings is black-brown like the hindwing; on the hindwing remains only a yellow-brown submarginal band at the distal margin.

25. Genus: **Leucothyris** *Bdv.*

This genus is as at present constituted rather extensive and might better be divided into several subgenera. Externally two principal groups are already differentiated: the first has shorter, rounded wings with broad whitish bands, often also with red-brown colour, especially at the apex of the forewing. The second has more pointed apex and peculiar whitish macular marking, especially at the apex and at the distal margin of the forewing, without brownish colouring. In the neuration, however, both forms fluctuate between the typical short *Hyposcada*-cell of the hindwing and long thin antenna and long cell and shorter antenna with distinct club. In typical *Leucothyris* the costal and subcostal are said to run close together. The cell of the hindwing in the ♂ is longer anteriorly than posteriorly; the middle discocellular longer than the upper.

Considering the large number of forms which belong here it is not surprising that representatives of the genus are found in the whole Neotropical region; but as in most Ithomiids, the eastern slopes of the Andes from Colombia to Bolivia produce the greatest abundance of forms. The range of distribution of the separate forms is mostly very restricted. Almost every large river-valley has its distinct local form, which sometimes occurs there in great abundance, but a few hundred metres higher or lower, or about 10 miles to either side, is no longer met with.

On this account some forms of this and other genera remain for decades great rarities, until the restricted locality is at last revisited by some collector, who then obtains the coveted species in abundance.

ida. **L. ida** *Hsch.* (38 d), from the Upper Napo in Ecuador, has black wings with milky vitreous spots and a red-brown submarginal band on both wings. The latter is very broad in the apex of the forewing, as is also the case in a large number of similar forms. *ida* is distinguishable especially by the two white dots in the apex of the forewing, moreover the forewing has four white spots and a triangle at the base. The hindwing has a large whitish discal longitudinal band. In the ♂ the spots and band are smaller. — *idina.* **idina** *Hsch.* is a smaller local form from the Upper Amazon with indistinct dots in the apex of the forewing and broader, light red-brown apical band. Moreover, on the hindwing the red-brown submarginal band is lighter and broader. — *kena.* **kena** *Hew.*, from eastern Ecuador, is considerably smaller than *ida*. The two vitreous spots at the apex of the forewing are confluent and completely enclosed by the red-brown subapical band. At the end of the cell three vitreous spots form an oblique band and the other three spots are also larger. — *ilerdinoides.* In **ilerdinoides** *Stgr.* (38 d) the two vitreous spots at the apex are absent, on the other hand there are two at the end of the cell. The red-brown subapical band of the forewing is broader. — *lerda.* Another similar form, which I call **lerda** *form. nov.*, differs from the preceding in having only one spot at the end of the cell of the forewing, on the other hand there is another at the lower angle of the cell in the disc. These forms fly on the Upper Amazon, but each of them probably occurs in a separate district.

Whilst the preceding forms have a short cell, like *Hyposcada*, in the following, otherwise very similar forms, the middle discocellular of the forewing, and hence also the cell, begins to be apppreciably longer anteriorly.

ilerdina. **L. ilerdina** *Hew.* (38 d), from Peru, which is regarded as type of the genus *Leucothyris*, differs superficially from *ilerdinoides* in the absence of the two vitreous spots at the end of the cell of the forewing.

lerida. **L. lerida** *Kirby* is similar to *kena*, but without the two apical vitreous spots. It flies on the Lower Napo.

lerdina. **L. lerdina** *Stgr.* (38 d), from Pebas on the Upper Amazon, is smaller than *ilerdina*. In it the two vitreous spots in the end of the cell and at the hinder angle of the forewing are united into a broad oblique band.

lubilerda. **L. lubilerda** *Hsch.*, from eastern Colombia, is a similarly marked species, but may be recognised at once by the tranparent vitreous spots, which in the other forms have a milky dusting.

ilerda. **L. ilerda** *Hew.*, also from eastern Colombia, is a form similar to *ilerdina*, without the vitreous spot in the red-brown band.

In the following forms the red-brown subapical band of the forewing is much narrower.

sexmaculata. confluens. lota. escura. praemona. **L. sexmaculata** *Hsch.* (38 d), from the Upper Napo in Ecuador, has 6 vitreous spots in the forewing, namely besides the two in the cell: one at the end of the cell, one at the hinder angle and 2 smaller ones at the distal margin. — In **confluens** *Hsch.*, from the Napo, there are only 5 spots, and in **lota** *Hew.* (38 e) only 4. The latter form occurs at the base of the eastern Andes in Ecuador. It has a posteriorly forked, dark oblique band at the end of the cell, which in *confluens* is moreover connected with the inner margin, so that in the latter a further vitreous spot is separated off. — **escura** *Hsch.* is a darkened form of *lota*, without the red-brown markings on the upper surface, and with brown-red instead of yellow-red colour on the under surface. The whitish dusting of the vitreous spots is weaker. — A form nearly allied to *escura*, from the Upper Amazon, which I call **praemona** *form. nov.*, is distinguished by much broader black margins and bands. The costal and distal margins of the hindwing especially are much widened and leave in the disc only a vitreous longitudinal band, which is broader at the inner margin, as in *epicharme* (38 e).

agarista. janarilla. **L. agarista** *Fldr.* (38 e). The red-brown colour is mostly much lighter than in the figure. This form may be recognised by the two large, connected vitreous spots in the apex of the forewing. It flies on the upper Rio Negro and the Upper Rio Napo. — **janarilla** *Hew.* is a very similar form from eastern Ecuador and Peru, without the red-brown colour on the upper surface, and without the whitish dusting in the disc of the hindwing.

priscilla. gunilla. **L. priscilla** *Hew.* (38 f) and **gunilla** *Hew.*, both from the Upper Amazon (Rio Juruá, Fonte Boa), are two rare, brightly coloured forms, with red-brown hindwing. *priscilla* has a submarginal band in addition to the dark distal margin on the hindwing. In *gunilla* only the commencement of this band is present in the apex. *priscilla* has in the dark brown forewing 4 vitreous spots and a basal triangle; in *gunilla* the vitreous spot at the hinder angle is wanting, the basal area is more extended and of a red-brown colour.

tigilla. **L. tigilla** *Weym.* (38 e) is a larger species from eastern Ecuador of similar appearance to *lota*, but without the fork of the oblique band and with broader wings.

assimilis. **L. assimilis** *Hsch.* is a very similar species from the same district, somewhat smaller, without the white spot at the costal margin and end of the cell of the forewing. The markings of the two forms also differ somewhat in other details. But they may be recognised especially by the neuration. The middle discocellular of the hindwing is considerably larger in *assimilis*, and the cell is consequently much larger.

zelica. pagasa. **L. zelica** *Hew.* (38 f), from the western Andes of Ecuador, may be recognised by the yellowish colour of both wings. The pattern of the otherwise blackish apical half of the forewing consists of two subapical dots and two larger whitish spots at the end of the cell and the hinder angle. The hindwing is very broadly margined with black. — A similar form is **pagasa** *Druce*, from Panama and Costa Rica. The hindwing is like that of *zelica*, but the forewing has a broad band through the cell. The subapical spots are larger.

aegle. zarepha. **L. aegle** *F.* (= hippodamia *Hew.*) (38 f). The wings are almost diaphanous with dark margins. In the forewing some oblique bands divide the vitreous area into a number of spots, namely besides the two in the cell: one each at the end of the cell and the hinder angle, as well as 2 smaller ones and 1—2 dots at the distal margin. A red-brown stripe traverses the distal margin of the hindwing. The species flies with the similar following form in Guiana. — **zarepha** *Hew.* (38 f) has at the end of the cell of the forewing a band-like row of spots to the hinder angle and 2 vitreous spots in the apex. On the under surface the white marginal dots are absent. Guiana.

dolabella. brisotis. **L. dolabella** *Hew.* (38 e), from Bolivia, has a broad, white oblique band at the end of the cell of the forewing and a double spot at the apex; across the cell runs an incomplete, dark oblique band. The vitreous spots and the disc of the hindwing are dusted with white. — As **brisotis** *form. nov.* I designate another form, likewise from Bolivia, with narrow white oblique band on the forewing, especially at the end of the cell. The dark distal margin of the hindwing is strongly widened proximally.

flexibilis. I give the name of **flexibilis** *spec. nov.* to a species from northern Peru which is similar to *dolabella.* It is smaller and has a narrower whitish oblique band, constricted in the middle. At the hinder angle of the forewing is placed an oblong vitreous spot, as in *crispinilla,* from which *flexibilis* is distinguished by the double spot in the apex. — *virina.* From Bolivia comes another very similar form, which I call **virina** *form. nov.* It has a white oblique band like *dolabella,* but the other vitreous spots are colourless, not dusted with white. At the hinder angle of the forewing there is a vitreous spot as in *flexibilis,* but the black oblique band across the end of the cell is quite narrow, linear from the median onwards.

perspicua. **L. perspicua** *Btlr.* (38 e) is very similar to *janarilla,* considerably larger, with subapical band instead of the double spot, and also a pear-shaped spot at the hinder angle of the forewing. It flies with the allied *onega* and *epicharme* at the Upper Amazon. — *onega.* **onega** ~~*Fldr.*~~ Hew has a broader white oblique band on the forewing and the hindwing is black with a narrow, curved vitreous band behind the middle, which is shaded with dark at the inner margin. — *epicharme.* In **epicharme** *Fldr.* (38 e) the vitreous band of the hindwing is broader, wedge-shaped, broadest at the inner margin.

amazona. **L. amazona** *Hsch.*, from the Upper Amazon, is similar to the preceding, with uniformly broad oblique band on the forewing, without the vitreous spot at the hinder angle. — *ramona.* Another similar form, which I call **ramona** *form. nov.*, has colourless vitreous spots except for the white oblique band, the spot at the hinder angle being elongate-quadrate. The median band of the hindwing is narrowest in the middle, the broad costal margin forming an angle at the 2nd median vein. It flies near Sara-yacu on the Ucayali.

crispinilla. **L. crispinilla** *Hpffr.* (38 e), from eastern Peru, is distinguished from the preceding by whitish dusting and narrow black costal margin to the hindwing, which does not enter the cell.

enania. A species very similar to the preceding, which I call **L. enania** *spec. nov.*, flies also in Peru. It is appreciably smaller and has different neuration, as well as narrower bands and margins. Especially noteworthy is the black streak across the cell of the forewing, which is here placed in the prolongation of the 1st median vein, whilst in *crispinilla* it is nearer to the base.

didymaea. **L. didymaea** *Hew.*, from Bolivia, has a similar pattern to *virina,* without the double spot in the apex of the forewing. It may be recognised by the black oblique band across the end of the cell of the forewing, which forms a streak from the median to the distal margin, as well as by the narrow, uniformly broad distal margin of the hindwing.

In the following forms the band-like streak through the cell of the forewing is absent.

borilis. **L. borilis** *spec. nov.* I thus name a similar species to *didymaea,* from Pozuzo in South Peru, with the wings dusted with white, without the streak in the cell. The distal margin of the hindwing is much broader.

synnova. **L. synnova** *Hew.* (38 f). This rare and beautiful species is very strikingly distinguished by the orange colouring (in the figure this is too dark) from the otherwise similarly marked species, such as *ramona,* etc. According to Bates it only flies on the north bank of the Upper Amazon, near Tunantins.

quintina. **L. quintina** *Fldr.* (38 f) is said to come from Venezuela, I know it only from Bolivia and Peru. It has white-dusted wings with black margins and an oblique band at the end of the cell of the forewing, which is gradually narrowed posteriorly. — *alexina.* The very similar **alexina** *Hew.*, from Peru and Bolivia, has colourless wings, only the subapical band of the forewing is dusted with white. The markings strongly recall *Ithomia ardea,* which, however, is distinguished by the neuration.

astraea. Next follows another small group with broad, rounded wings and black streak through the cell of the forewing, of which **L. astraea** *Cr.* (39 b) is often mistaken for some other species. The typical form comes from Guiana. It has a broad, black oblique band on the forewing, which is only forked shortly before the distal margin; also quite faint red-brown colour in the distal margin of the hindwing. — *thimei.* **thimei** *Oberth.* (= flora *Hew.* Exot. But. f. 68), from the Rio Magdalena in Colombia, is very similarly marked, but has no red-brown on the upper surface and beneath only at the base. Moreover, the distal margin of the hindwing is narrower and uniformly broad. — *flora.* **flora** *Cr.*, from Cayenne and Surinam, is a larger form with broad margins and bands and also red-brown markings in the distal margin of the hindwing. At the distal margin of the forewing 2 distinct white spots are marked off by the branches of the oblique band. — *antaxis.* On the Lower Amazon flies a smaller form of *astraea,* with roundish apex to the forewing, which I call **antaxis** *form. nov.* It has a light red-brown, dark-bordered distal margin to the hindwing and a similar spot at the hinder angle of the forewing.

stradopsis. An extremely similar species from the Middle Amazon, which I call **L. stradopsis** *spec. nov.*, has different neuration and more pointed apex to the forewing. The upper arm of the lower discocellular and also the middle discocellular are longer. The oblique band of the forewing is rather gradually narrowed beyond the 2nd median, the 3rd is not thickened,

egra. In **L. egra** *Hew.* (39 b) the black oblique band of the forewing is very broad, runs on the 3rd median vein and is connected at the other side with the black inner margin. The species flies on the Amazons.

aquata. **L. aquata** *Weym.* (39 b), from Brazil, is similar to *astraea*, with narrower margins and bands. The oblique band at the end of the cell only extends a little beyond the inner angle. The black streak across the middle of the cell is said to be of uniform width in typical specimens. Many examples, however, occur in which it is wedge-shaped.

serdolis. In another species, which I call **L. serdolis** *spec. nov.*, a wedge-shaped oblique band runs from the end of the cell across the 3rd median vein, and the vitreous spots are dusted with white. The pattern otherwise the same as in *astrea.* This form flies on the Upper Amazon.

Here begins the 2rd principal group of *Leucothyris* with elongate, colourless wings, which bear delicate whitish spots. Of these one at the distal margin of the forewing between the 2rd and 3rd median veins is especially characteristic of the group, as it is placed so close to the distal border that the dark distal margin is always narrowed here. There are two similar whitish spots at the apex of the forewing. The neuration of the hindwing is also very varied in this group. There occur both species with typical *Hyposcada*-neuration and also very many in which the cell is considerably longer than in typical *Leucothyris*-species.

susiana. *susanna.* **L. susiana** *Fldr.* (38 g). This beautiful and rare species from the eastern Andes of Colombia and Ecuador has black wings with several rows of white vitreous spots. On the under surface the predominant colour is red-brown. The forewing has at the base an oblong spot, then follow 2 rows of white spots before and behind the end of the cell, and also 3 subapical spots and some white marginal dots. The hindwing shows in the disc a continuous white macular oblique band and large white double marginal dots. — **susanna** *Stgr.* is a very similar form from Colombia with smaller white spots and dots, but a broader yellowish oblique band on the hindwing.

cyrene. *radina.* **L. cyrene** *Latr.* is similar to *susiana,* from the Upper Amazon and Peru. The position of the vitreous spots is somewhat different. The middle spot of the first row is absent and the band of the hindwing is widened at the inner margin. — A nearly allied form from Colombia, which I call **radina** *form. nov.*, has a double spot in the end of the cell of the forewing and behind it 3 vitreous spots. The oblique band of the hindwing is widened at the inner margin to the base. — *Napeogenes domiduca Hew.*, from Bolivia, very closely resembles the *Leucothyris*-forms now under consideration, but belongs to the genus *Napeogenes,* as I have only recently been able to prove from typical specimens. It has a large basal vitreous area in the forewing and from the end of the cell to the hinder angle a broad macular band, divided at the costal margin. Cf. Additions, p. 165.

attalia. *attalita.* **L. attalia** *Hew.* (38 g) has a black spot in the end of the cell of the forewing and numerous vitreous spots in the apical half. The species flies in Bolivia and Peru. — **attalita** *Hsch.* is a much smaller form from Bolivia. The vitreous spots have a strong milky colouring and on the under surface the yellow-brown colour of *attalia* is here grey-brown.

taliata. **L. taliata** *Hew.*, from Peru, has larger, contiguous vitreous spots in the disc of the forewing and a very broad vitreous band on the hindwing, as well as larger marginal dots on both wings.

solida. *completa.* **L. solida** *Weym.* (38 g). Here the vitreous spot between the 2nd and 3rd median veins in the discalmacular band of the forewing is the longest (in *taliata* it is the one between the 1st and 2nd veins). The large marginal dots are almost entirely absent. On the hindwing the vitreous band is narrower in the middle. — In ab. **completa** *Hsch.*, which flies with the type in eastern Ecuador, the costal margin of the hindwing is black to beyond the cell, so that the vitreous band is narrower.

orestilla. **L. orestilla** *Hew.* (38 g) is the largest species of the true Ithomiids. The markings are similar to those of *solida,* with much larger vitreous spots. The third apical spot at the costal margin is absent. It flies in the eastern Andes of Colombia and Ecuador in thick mountain woods near the tree-limit at elevations of up to 3000 m.

valida. **L. valida** *Hsch.*, from the borders of Peru and Bolivia, is the same size as *susiana* and resembles *completa,* without the white marginal spots on the upper surface. The small white dot between the end of the cell and the apex is in alignment with the two other subapical spots, and the vitreous spots at the hinder angle are larger.

fasciata. **L. fasciata** *Hsch.*, from the Upper Pastaza in Ecuador, is smaller, with narrow black costal margin to the hindwing and spot across the end of the cell. It has a milky oblique band in the vitreous area of the hindwing, whilst in *solida*, which is otherwise similar, the whole disc is milky coloured.

deronda. *derondina.* **L. deronda** *Hew.* (39 a), from Peru and Bolivia, is distinguishable from the similar forms by the yellowish tinted forewing. In markings it is similar to the preceding forms, but the apex is much more narrowly black, so that the two apical vitreous spots are not defined proximally. — **derondina** (*Stgr. i. l.*) is a much smaller but otherwise extremely similar form from Bolivia with somewhat different neuration. The second yellow spot at the costal margin of the forewing above is absent. The spot in the cell is narrower and in the ♀ the black spot is absent in the angle which the median forms with its 1. branch.

cytharista. **L. cytharista** *Hew.*, from Peru, probably also belongs here. It is of the same size as *deronda* and has yellowish forewing with dentate distal margin and curved half-band across the end of the cell. The hindwing has a bluish white tone and broad distal margin, strongly dentate proximally, with large white dots.

athalina. *tremona.* *banjana.* *santineza.*

Under the name **L. athalina** (38 g) Staudinger united several similar forms. I regard as typical specimens according to Staudinger's figure those from Bolivia of which the ♀ bears a dark mark across the cell of the hindwing. The forewing is similar to that of *valida*, but the second white dot at the costal margin near the apex is absent. — The similar form from Colombia I call **tremona** *form. nov.* In the ♀ the dark mark on the median of the hindwing is absent and also the connecting triangle between the end of the cell and the inner margin. The half-band at the end of the cell is produced into a point at the 3rd median vein. — **banjana** *Hsch.* is the form from eastern Ecuador, which occurs at elevations of from 2—3000 m. The two apical vitreous spots are proximally bordered with black. The half-band at the end of the cell is as in *athalina*, but in the ♀ the dark mark on the median of the hindwing is absent. On the under surface the colour is brown-red, lightest in *tremona*: yellow-brown. — **santineza** *Hsch.* is a smaller form from Ecuador; it flies at elevations of from 1000—15000 m. The spot in the cell of the forewing in the ♂ is wedge-shaped, in the ♀ broader, with the extremity obtuse.

tabera. *maerenda.*

L. tabera *Hew.* (39 a), from the eastern Andes of Ecuador, has narrower half-bands across the end of the cell of the forewing and in the middle of the cell. The distal margin of the hindwing is very broadly edged with black. On the under surface the margins have dark brown-red markings. — In ab. **maerenda** *Hsch.* the apex of the forewing is broadly black with two vitreous spots. The hindwing has the distal half and the apex black.

The following forms have a narrower distal margin to the hindwing.

makrena. *makrenita.*

L. makrena *Hew.* (39 a), from Venezuela and Colombia, differs from the similar forms, such as *santineza*, etc., in the much narrower distal margin of the hindwing. The half-band at the end of the cell of the forewing is broad, the streak in the middle of the cell narrow. — **makrenita** *Hsch.* (39 a) is considerably smaller, it flies in eastern Ecuador. The markings are similar to those of *makrena*, behind the end of the cell of the forewing there is a white macular band.

baizana.

L. baizana *Hsch.*, likewise from the eastern Andes of Ecuador, may be recognised at once by the smoky brown colour and the long, narrow wings. The markings are similar to those of *makrena*. The dark brown distal border of the hindwing is proximally dentate at the veins.

quadrata.

L. quadrata *Hsch.* (39 a), from eastern Ecuador, is smaller than the preceding and may be recognised by the broad wings and the 2 vitreous spots in the apex of the forewing. The wings have a bluish white sheen.

amalda. *amaldina.*

L. amalda *Hew.* (39 b), from Colombia, has very similar markings, but differs notably in the red-brown colour in the distal half of the hindwing. It flies together with the very similar *Pseudoscada lavinia*, but is easy to recognise by the dark streak in the cell of the forewing. — **amaldina** (*Stgr. i. l.*) is a smaller, more weakly marked form, likewise from Colombia. Its hindwing is diaphanous except for a yellow-brown distal margin.

modesta.

L. modesta *Hsch.*, from western Ecuador and Colombia, has similar markings to *quadrata*. The apex of the forewing is rounded; the half-band at the end of the cell is short, triangular; the dark distal border of the hindwing narrow.

bioculata.

L. bioculata *Hsch.*, from Bolivia, is likewise a similar form to *makrenita*; with 2 vitreous spots in the apex of the forewing and indistinct streak in the cell. Beneath the margins are yellow-brown, with only 2 white dots in the apex of each wing.

epimakrena.

L. epimakrena *Hsch.*, from Bolivia, is about the same size as *makrena* and has similar markings. It may be recognised by having the distal border of the hindwing proximally dentate at the veins and a dark streak at the end of the cell. The wings are elongate; the spot in the middle of the cell of the forewing wedge-shaped.

zea. *vicina.*

L. zea *Hew.* (39 b) is one of the few but peculiar Ithomiids which occur in Mexico. Prominent characters are the brown-red margins and the presence of only one vitreous spot in the apex of the forewing. — **vicina** *Salv.* is a similar form, also with brown-red margins, from Costa Rica. It is smaller, the margins in the apex of the forewing are narrower. The spot at the end of the cell is triangular; the streak in the middle of the cell narrower.

caucana.

L. caucana *Stgr.* (39 b), from the Cauca Valley in Colombia, has narrower margins and patches than *makrena*. The black streak in the middle of the cell is often entirely absent.

phemonoë. *burchelli.*

L. phemonoë *Dbl. & Hew.* (= morphenoë *H.-Schäff.*) (39 b), from Colombia and Venezuela, has rounded wings with narrow margins and a narrow streak in the cell of the forewing. The subcostal of the forewing is red-brown; the whitish patches at the apex and distal margin are indistinct. — **burchelli** *Sand.*, from the Rio Tocantins, is said to be nearly allied to the preceding form, but to be distinguished by broader margins and patches. Especially the dark oblique band across the end of the cell is prolonged and then continued as a distinct stripe on the 2nd median vein to the distal margin.

rubescens. **L. rubescens** *Btlr. & Druce* (39 c), from Costa Rica, has the margins partly red-brown, as in *vicina*, but a broad black-brown apex to the forewing, and also a broad white oblique band.

The following forms have no dark streak in the cell of the forewing.

inelegans. **L. inelegans** *Hew.*, from Ecuador, is of the same size as *susiana* and has vitreous wings with dark distal margins, strongly dentate proximally, especially in the hindwing. Across the end of the cell of the forewing is placed a half-band, with process at the 3rd median vein. On the under surface the margins are red-brown with white distal-marginal double spots.

fumata. **L. fumata** *Hsch.*, from the Cauca Valley, is of the same size as *makrenita* and has narrow borders to the slightly smoke-brown wings and narrow half-band at the end of the cell of the forewing. Beneath the margins are light yellow-brown.

manora. **L. manora** *Schaus*, from Central Brazil, is said to have transparent bluish white wings with blackish margins and veins. In the apex of the forewing a vitreous spot, at the end of the cell a whitish patch.

sarilis. As **L. sarilis** *spec. nov.* I designate a form from the Upper Amazon, similar to *graciella*, with 2 vitreous spots in the black apex of the forewing. The half-band at the end of the cell has a projection above the 3rd median vein; the whole of the 2rd vein is broadly black.

graciella. victorina. **L. graciella** *Oberth.* (= victorina *Hew.*) (39 c), from the Upper Amazon, and **victorina** *Guér.*, from Venezuela and Colombia, are very much alike. They have a broad black apex and a broad white oblique band at the end of the cell. In *graciella* the veins in the white oblique band are completely covered, whilst in *victorina* *padilla.* the upper vein and half the second one appear black. — **padilla** *Hew.*, from western Ecuador, is also very similar, with broader white oblique band, which reaches to the hinder angle, so that the 2rd median vein also *paula.* is dusted with white. — **paula** *Weym.*, from Central America, is likewise similar, with narrow white oblique band, broad, almost quadrangular, black spot at the end of the cell and red-brown costal margin, and also a red-brown spot at the hinder angle of the forewing and distal margin of the hindwing.

estella. **L. estella** *Hew.* (39 c), from eastern Ecuador, is a small species with broad black apex to the forewing and distal margin to the hindwing, the latter with a red-brown stripe, and also with a broad white oblique band in the forewing. On the under surface the dark margins have yellow-brown central stripes. — In Bolivia *subosa.* occurs a similar form, which I call **subosa** *form. nov.* It has a narrower white oblique band and narrower distal margin to the hindwing. Moreover, the whole disc of the latter is whitish, together with the veins; in *estella* only at the apex, the rest being colourless with black veins.

Finally I refer here 2 new forms, which are very different from the preceding, but according to the neuration agree best with *Leucothyris*.

ferra. **L. ferra** *spec. nov.* (39 d) strongly recalls by its markings species of *Thyridia*, *Aprotopos* and *Dircenna*. The wings are almost colourless with dark brown margins and a transverse band across the end of the cell of each wing. In the middle of the distal margin of the hindwing there are 3 white dots. The antenna has yellowish club. On the under surface all the distal margins have white marginal dots as far as the apex. *thyridiana.* From southern Peru. — **thyridiana** *form. nov.* is a similar, larger form from Bolivia with black margins and bands and a triangular spot in the cell of the forewing. Otherwise the markings are as in the preceding. On the under surface a yellowish streak is placed behind the base of the hindwing.

26. Genus: **Episcada** *Godm. & Salv.*

This also is only a genus of convenience, whose characters are not sharply defined. Properly the upper discocellular of the hindwing should be entirely absent in the ♂, but mostly it is still feebly present. The habitus of the species referred to *Episcada* is always very different from that of *Leucothyris* and approaches much more that of the following genus *Pteronymia*. The lower discocellular in *Episcada* appears to be always very distinctly angled, whilst in *Leucothyris* the anterior arm disappears in the dark costal-marginal stripe. The cell of the hindwing in typical species is almost equally long anteriorly and posteriorly.

The species of *Episcada* are mostly not easy to recognise as such, since superficially they closely resemble certain species of *Pteronymia*. Only the ♂♂ are more certainly distinguishable by the upper discocellular and radial of the hindwing. The few species of *Episcada* are scattered over the whole Neotropical region and are generally not very common.

salvinia. **E. salvinia** *Bates* (39 d), from Guatemala, has delicate, almost colourless wings with narrow brown margins and half-band at the end of the cell of the forewing, and also a white spot at the costal margin. On *rufocincta.* the underside the margins are lighter yellow-brown. — **rufocincta** *Salv.*, from Mexico. is a similar form with yellow-brown margins, blackish streak at the inner margin of the forewing, and without white patch at the end of the cell.

clausina. **E. clausina** *Hew.* (39 d), from Bolivia, has dark brown margins and half-band with yellow spot at the end of the cell. The costal margin of the hindwing is yellow beneath. The subcostal of the forewing is *striposis.* red-brown; in the ♀ also the inner margin. — In Central Brazil occurs a very similar form, which I call **striposis** *form. nov.* It has additional yellow dusting in the end of the cell of the forewing and on the hindwing. On the under surface the margins are darker red-brown with blackish borders.

carcinia. *pasena.* **E. carcinia** *Schaus*, from South Brazil, is said to have colourless wings with narrow margins and a white spot behind the cell at the costal margin of the forewing. — In **pasena** *Schaus*, from Central Brazil, the body is said to be grey beneath; the transparent wings with very narrow brown margins. Forewing with narrow streak at the end of the cell and a transparent streak at the costal margin. Hindwing with 1—2 white dots at the apex of the under surface.

mira. **E. mira** *Hew.* (= segesta *Weym.*) (39 d), from eastern Ecuador, has a very broad yellow half-band at the end of the cell of the forewing and is otherwise similar to *clausina*.

hymenaea. *hymen.* **E. hymenaea** *Prittw.* (39 e), from Central Brazil, has brownish margins and half-band at the end of the cell of the forewing and in addition a whitish patch. Diaphanous spots are placed at the distal margin of both wings. On the under surface the margins are lighter. — **hymen** *Hsch.* (39 e), from southern Bolivia, is smaller with broader margins and half-band at the end of the cell, and also a yellow oblique band. Subcostal red-brown at the base. The median, the end of the cell and the hinder angle of the forewing are dusted with yellow, and also the lower radial of the hindwing and a stripe at the costal margin on the under surface.

sulphurea. **E. sulphurea** *Hsch.*, from the border of Peru and Bolivia, has longer wings, broader yellow oblique band and broader dark brown margins. The yellow dusting is extended over the cell of the forewing and the greater part of the hindwing; on the other hand it is absent at the costal margin of the hindwing beneath.

sao. *obscurata.* **E. sao** *Hbn.* (39 d), from Brazil, has broader dark margins and yellow patch at the end of the cell of the forewing. Base of the under surface of the hindwing yellow-brown, distal margin with 4 white crescents. — **obscurata** *F.* is according to Butler a dark form of the preceding.

sylpha. **E. sylpha** *Hsch.* (39 e), from Venezuela, is similar to *Miraleria sylvella*, but is smaller and has different neuration. The wings are diaphanous with brownish margins; at the costal and inner margins of the forewing with yellow-brown, and the same at the inner angle of the hindwing. At the end of the cell of the forewing a yellow patch.

polita. **E. polita** *Weym.* (39 e) is very similar to *Pteronymia aletta*. The wings are dark-shaded with dark brown margins. The inner margin and the subcostal of the forewing, as well as the veins in the disc of the hindwing, are yellow-brown. Besides the yellow spot at the end of the cell both wings have further yellowish patches at the distal margin and in the end of the cell. *polita* flies together with *Pteronymia aletta* in Colombia.

cabenis. *helena.* **E. cabenis** *Hsch.* is somewhat larger, with colourless wings, dark brown margins and white half-band behind the brown one at the end of the cell. On the under surface the margins are yellow-brown, dark-margined with 1—2 dots in the apex of both wings. It flies like the similar **helena** *Hsch.* in eastern Colombia. The latter is still larger, with narrower margins, triangular spot at the end of the cell of the forewing and broader white half-band.

sidonia. **E. sidonia** *Hsch.*, from southern Peru, has more pointed wings; cell of the hindwing with long recurrent vein. The white patch at the end of the cell of the forewing is only distinct at the costal margin and on the radials. On the under surface the margins are deep ochreous coloured, without white dots in the apex.

cora. *ticidella.* **E. cora** (*Bang-H. i. l.*), from Bolivia, is larger than the similar **ticidella** *Hew.* (39 e), from eastern Ecuador. The wings in *cora* are slightly brownish; behind the end of the cell of the forewing, at the distal margin and at the inner angle of the hindwing yellowish. Across the end of the cell of the forewing there is a broad brown wedge-spot; in *ticidella* there is only a very narrow dark mark here and behind it a whitish patch. On the under surface the margins in *cora* are light yellow-brown, in *ticidella* brownish with white dots in the apex of the forewing and at the distal margin of the hindwing.

canilla. **E. canilla** *Hew.* (= canaletta *Stgr.*) (39 c) has elongate wings with yellow dusting, except in the apex. The margins are dark brown; in the ♀, especially in the hindwing, much broader. On the under surface the margins are brown-red, with dark borders; at the base of the hindwing yellow; with white double spots in the apex of the forewing and at the distal margin of the hindwing.

perasippa. **E. perasippa** *Hew.* (39 e) is a very large, little marked species from Ecuador and Colombia. The wings are yellowish, vitreous with narrow brown margins and a streak across the end of the cell of the forewing. The subcostal of the forewing and the underside of the margins are yellow-brown.

dirama. *alidella.* **E. dirama** *Hsch.* (39 f), from Bolivia, is smaller, with broader streak at the end of the cell and yellow spot behind it. The costal margin of the hindwing is yellow on the under surface. — **alidella** *Hew.*, from Colombia, is a very similar form, which also much resembles *Pteronymia alida*. Hewitson has noticed that there is a difference between the two in the neuration, which also appears to be constant for other species of *Episcada* and *Pteronymia*: in *alida* the lower arm of the lower discocellular of the forewing is the longer; in *alidella* it is the upper one. *alidella* has broader wings with dark margins and broad yellow half-band at the end of the cell of the forewing. In the ♀ there are further several yellow patches at the distal margin.

scantilla. **E. scantilla** *Hew.*, from eastern Ecuador and Colombia, has similar wing-form to *dirama*, a white spot at the end of the cell of the forewing and white patches at the distal margins.

paradoxa. **E. paradoxa** *Stgr.*, from the Cauca Valley, is a large species with colourless wings and narrow borders. only the costal and inner margins of the forewing have broad margins, the end of the cell is without marking, Similar species are *Napeogenes flossina* (35 g) and *Hymenitis quinta.*

praestigiosa. **E. praestigiosa** *Hsch.* closely resembles *Dismenitis cleonica* (41 e), but is distinguishable at once by the acutely angled lower discocellular of the hindwing. The forewing is slightly shaded, the hindwing tinged with yellowish; with white patches at the end of the cell of the forewing and the distal margins. The end of the cell of the forewing is in the ♂ very narrowly, in the ♀ broadly coloured with brown. The distal margins are proximally produced into points at the veins. — A similar, smaller species from Colombia, which I call *lobusa.* **lobusa** *spec. nov.*, has a yellowish patch at the end of the cell, more weakly dentate distal margins, narrower marks at the end of the cell and at the distal margin of the hindwing; on the under surface large white double spots, which are entirely absent in *praestigiosa.*

philoclea. The following **E. philoclea** *Hew.* (39 d), from southern Brazil, has already quite the appearance of a *Pteronymia,* but still a distinct upper discocellular and radial in the hindwing of the ♂♂. It has yellowish wings with black margins, half-band across the end of the cell and yellowish patch beside it. In the disc of the hindwing the veins are also yellowish. On the under surface the margins are dark brown-red, with white double spots at the distal margin of the hindwing and the apex of the forewing. The costal margin of the hindwing is yellowish with reddish spot at the base. The species recalls *Ceratinia eupompe* (35 d), with which it occurs *munda.* together. — **munda** *Weym.* is a form with broader margins and connecting streak between the half-band and the inner margin of the forewing.

27. Genus: **Pteronymia** *Btlr. & Druce.*

To this genus should rightly belong only species in which the upper discocellular of the hindwing is absent and in the ♂♂ of which at least the greater part of the upper radial is coincident with the subcostal. But when one has only female specimens it is often difficult to determine whether the species belongs to *Pteronymia* or *Episcada,* for superficially forms of the two genera are often very similar. There are no distinctive external characters for the whole genus, as in *Leucothyris.* The commonest pattern is that shown in *zerlina* (39 g); yet there are also gay-coloured species, such as *latilla,* which recall *Episcada.* The forms belonging to *Pteronymia* are rather numerous. They often occur in numbers, are mostly widely distributed and therefore not rare. A few even occur in great profusion, such as *zerlina, simplex, artena, euritea.* The Andes from Bolivia to Colombia produce the largest number of species.

latilla. **P. latilla** *Hew.* (39 f), from Venezuela and Colombia, has transparent yellowish wings with yellow-brown dusting, especially at the base of the forewing and the inner angle of the hindwing. The apical half of the forewing is blackish with 2 yellow macular bands. The margins of both wings and a spot in the cell *albicans.* of the forewing are also blackish. — In ab. **albicans** *Hsch.* the yellow macular bands are whitish and the end *nigricans.* of the cell of the forewing and the apical third of the hindwing are dusted with yellow. — In ab. **nigricans** *Hsch.* the spot in the cell, the costal and inner margin, and also the end of the cell of the forewing and a band on the median are broadly black-brown. It flies in Colombia.

barilla. **P. barilla** *Hsch.* is a form similar to *latilla*; from western Ecuador. It has more delicate colouring, smaller yellow dots, a red-brown base to the inner margin of the forewing, slightly reddish colour on the hindwing and much smaller white marginal dots in the distal margin of the hindwing beneath.

picta. **P. picta** *Salv.*, from Colombia, has a blackish forewing, the base of the cell is brown, the middle yellow, across the end is placed a black spot. In the distal half there are 2 yellow macular bands consisting of 4 or 5 spots. The hindwing is yellow, with broad black distal margin and brown streak at the inner angle.

notilla. **P. notilla** *Btlr. & Druce* (39 f ♂, ♀). The ♂ has a similar pattern to *latilla,* but paler, also the dark spot in the cell is absent. In the ♀ the colouring is much lighter; the cell shaded with dark and the hindwing unicolorous. red-brown. This is the Central American form of the group, from Costa Rica. It has black *olyrilla.* antenna, while that of the preceding forms has a yellowish club. — **olyrilla** *Btlr. & Druce,* likewise from Costa Rica, recalls the similar *Dircenna olyras* by the vitreous longitudinal band in the hindwing, and differs principally in this from the preceding form.

donella. **P. donella** *Fldr.*, from Colombia, has a red-brown basal third to the forewing and a differently shaped half-band at the end of the cell. The hindwing as in the ♀ of *notilla* is uniformly red-brown with broader dark distal margin.

donata. **P. donata** (*Bang-H. i. l.*) is a smaller form from Panama and Costa Rica with lighter colour and very broad, angled yellow band to the forewing, which extends from the costal margin across the end of the cell to the inner margin. Otherwise the markings are similar to those of *donella.*

fulvimargo. **P. fulvimargo** *Btlr. & Druce,* from Costa Rica, is said to be similar to *Episcada obscurata* and *Dircenna olyras* (36 e). The forewing is transparent with faint yellowish macular band at the end of the cell and the distal margin, and also with blackish half-band at the end of the cell. The hindwing has dark margins and also a red-brown sub marginal band and red-brown veins. ♂ and ♀ are coloured almost alike.

fulvescens.

P. fulvescens *Godm. & Salv.*, from Costa Rica, is said to be similar to *latilla* and *fulvimargo*. The upper radial of the hindwing is entirely absent. The club of the antenna is yellow.

splendida.

P. splendida *Hsch.*, from eastern Colombia, of which only the ♀ is known to me, has the forewing similar to that of *notilla*-♀, with broader black margins and dark spot in the middle of the cell. The hindwing is slightly yellow-brown, with a yellow spot at the apex and very broad black distal margin. The club of the antenna is yellow-brown.

dispar.

P. dispar *Hsch.* (39 f) has transparent yellowish wings with black margins and half-band at the end of the cell, which beneath are variegated with brownish. Club of the antenna yellow-brown. In the ♀ the subcostal and median of the forewing, as well as the veins in the disc of the hindwing, are yellow-brown. The species flies in Colombia and Venezuela.

alinda.

P. alinda *Fldr.*, from Venezuela, is said strongly to recall *donella* in the markings. Forewing in the cell yellow-brown, subcostal and median red-brown, the other margins black-brown. In the blackish apical area 2 yellowish macular bands. Hindwing dusted with yellow-brown, with red-brown veins and broad blackish distal margin.

veia. *brunnea.*

P. veia *Hew.* (39 g), from Venezuela and Colombia, has a broad yellow oblique band at the end of the cell of the forewing and yellow-brown margins on the under surface with large white crescents. In the ♀ the margins are broader and a dark spot is placed at the end of the median of the forewing. — In ab. **brunnea** (*Stgr. i. l.*) the subcostal and median of the forewing and also the veins in the disc of the hindwing are yellow-brown. The yellow oblique band is still broader and more brightly coloured.

zerlina. *tamina.* *hara.*

P. zerlina *Hew.* (= arinia *H.-Schäff.*) (39 g) has vitreous wings with blue-grey sheen and dark brown margins; only the costal margin of the forewing is red-brown. At the dark band at the end of the cell and at the distal margin of the forewing there are whitish patches. In the red-brown margins of the under surface are placed at the apex of the forewing single, and at the distal margin of the hindwing double white dots. In the ♀ the inner margin and the half-band of the forewing are connected by a dark triangle. — In a local form from southern Peru, which I call **tamina** *form. nov.*, the club of the antenna is yellow-brown. The basal half of the cell is shaded with dark; the apical half of the forewing is yellowish and the disc of the hindwing has bluish white sheen. On the under surface the white dots are much smaller. — **hara** *Hew.* is a local form of *zerlina*, from Ecuador, with whitish patches behind the end of the cell and at the distal margin of the forewing. The subcostal is red-brown.

lincera. *alina.*

P. lincera *H.-Schäff.* (39 g) has transparent yellow-brown wings, with yellowish patches at the end of the cell and at the distal margin of the forewing. Subcostal and median are light red-brown. Otherwise the markings are similar to those of *zerlina*. Eastern Ecuador and Colombia. — **alina** (*Stgr. i. l.*) is a form similar to *zerlina*, from Bolivia, with red-brown, dark-edged margins on the upper surface, light yellow-brown beneath; with yellowish patches in the end of the cell, behind the cell, at the distal margin of the forewing and at the apex of the hindwing. In the ♀ the margins are proportionately broader.

pronuba.

P. pronuba *Hew.*, from western Ecuador, has colourless wings with black margins and black-white half-band at the discocellular. Subcostal and median are red-brown at the base. In the ♀ both the margins and the white half-band are much broader.

tucuna. *tanampaya.* *bueya.*

In **P. tucuna** *Bates* (39 g), from the Upper Amazon, the dark-margined wings are provided with numerous yellow dots, namely in and behind the end of the cell, at the distal margin and hinder angle of the forewing, and also in the disc of the hindwing. The black antennae have yellow-brown clubs. — **tanampaya** (*Stgr. i. l.*). from Bolivia, has narrower wings. The whole cell of the forewing and the disc of the hindwing are dusted with yellow. The margins beneath are dark red-brown, in *tucuna* yellow-brown. — **bueya** (*Bang-H. i. l.*) is very similar to the preceding, but with red-brown subcostal and red-brown margins on the underside. It likewise flies in Bolivia.

zabina. *brunneata.*

P. zabina *Hew.* (40 b), from Colombia and Ecuador, has broader wings with smaller yellowish dots at the end of the cell and the distal margin of both wings. Antenna black; subcostal and a narrow inner-marginal stripe are red-brown. — In ab. **brunneata** *Hsch.* the median and the veins in the disc of both wings are also red-brown. At the end of the cell of the forewing there is a yellow half-band.

huamba. *oneida.*

P. huamba *spec. nov.* I call a small form similar to *lincera*, also from the eastern Andes of Ecuador, with slightly yellowish wings and faint yellow-brown patches at the end of the cell and distal margin of the forewing. The margins are black-grey, only the subcostal of the forewing slightly yellow-brown. The white double spots at the distal margin of the hindwing are very large. — **oneida** *Hew.* (39 g), from Colombia and Ecuador, is somewhat larger, with more brightly coloured wings. The distal margin of the hindwing is proximally dentate, especially in the ♀. There is a dark, isolated spot in the disc of the forewing at the end of the cell. The subcostal is broadly yellow-brown.

inania. **P. inania** *Hsch.* is a similar, larger species with broader wings and deep black-brown margins. Behind the end of the cell is placed at the costal margin an oblong yellow-brown spot. On the under surface there are numerous roundish white dots in the distal margin. This species, like the preceding, comes from the border of eastern Ecuador and Colombia.

serrata. **P. serrata** *Hsch.* has still larger and broader, slightly yellowish wings with strongly dentate distal border. The half-band at the end of the cell of the forewing is proximally widened. On the under surface there are quadrate, yellow-brown, dark-margined spots at the distal margin of the hindwing between the white double spots. This species flies with *Dismenitis theudelinda* (41 d) and other similar forms in the mountain forests of the eastern chain of the Cordilleras of Ecuador at elevations of from 2—3000 m.

teresita. **P. teresita** *Hew.* (40 a, b), from eastern Ecuador, has broad wings, almost colourless in the ♂, with narrow dark margins. In the ♀ the wings are dusted with yellowish, especially the hindwing. The latter has much broader distal border than in the ♂. On the under surface the margins are dark red-brown, with white dots in the apex of the forewing and at the distal margin of the hindwing.

evonia. In **P. evonia** *Hsch.*, from Colombia, with shorter wings, the ♀ is of a yellow-brown colour, especially in the cell and at the end of the median of the forewing, and also at the proximal border of the costal and distal margins and on the veins in the disc of the hindwing. The antenna is black. The distal margin of the hindwing very broadly black.

sulmona. **P. sulmona** *Hew.*, from Ecuador, is said to be similar to *teresita*, with narrower margins and black antenna. The base of the forewing and the hindwing are dusted with red-brown. On the under surface there is a white spot in the apex of each wing and the base of the hindwing is yellow.

suesa. **P. suesa** *Hew.*, from Ecuador, has transparent wings with yellowish sheen and narrow brown margins and half-band across the end of the cell of the forewing. The club of the antenna is yellow-brown. On the under surface the margins are yellow-brown, with 2 white dots in the apex of the forewing and a row of double dots at the distal margin of the hindwing.

thabena. **P. thabena** *Hew.* (40 a), from the eastern ridge of the Andes in Ecuador, has broad, transparent
wings, the forewing with yellowish, the hindwing with bluish sheen. Unfortunately only ♀♀ are known of
this and the following similar forms, so that the genus cannot be exactly fixed. The marking recalls
forms of *zerlina*. The distal margin of the hindwing especially is very broad, and on the underside, where
it is red-brown, provided with whitish double dots. The antenna has yellow-brown club. — A local form
stantis. from Bolivia, which I call **stantis** *form. nov.*, is distinguished by a narrow black half-band at the end of
aegineta. the cell of the hindwing. — From Ecuador comes another similar form, **aegineta** *Hew.* It has the distal
margin of the hindwing strongly dentate proximally and a proximally widened half-band at the end of the
cleobulina. cell of the forewing. — **cleobulina** *Hew.*, from Bolivia, probably also belongs here. It has the hindwing
like *thabena*, but in the cell of the forewing in addition a black bar, and at the black distal margin a projection in the direction of the somewhat prolonged half-band at the end of the cell.

denticulata. **P. denticulata** *Hsch.* (40 b), from Bolivia, has black margins and half-band at the end of the cell of
the forewing; the distal margins are proximally dentate. The club of the antenna is yellow-brown. — In
dispaena. **dispaena** *Hew.* (40 a), from the same district, the margins are brown; subcostal of the forewing reddish;
antenna black. In the ♀ the margins are broader and partly red-brown.

alida. **P. alida** *Hew.* (40 a), from Venezuela, has narrower margins and a broad yellow half-band behind the uniformly broad half-band at the end of the cell. It closely resembles *Episcada alidella.*

calgiria. **P. calgiria** *Schaus* (? = dircennoides *Stgr. i. l.*), from Bolivia, is said to have transparent yellowish wings, with narrow dark brown margins and veins, and also curved half-band at the end of the cell of the forewing; behind this there are yellowish spots at the costal and distal margins; also at the base and in the end of the cell of the forewing. The distal margin of the hindwing is broadest at the 2nd median vein and in the apex. Club of the antenna yellow-brown.

tigranes. **P. tigranes** *Godm. & Salv.* (40 b), from Central America, has colourless wings with narrow dark
margins, somewhat broader in the ♀; in the forewing red-brown subcostal, and also a broad dark and
timagenes. white half-band at the end of the cell. — **timagenes** *Godm. & Salv.*, from Mexico, at elevations of up to
about 2000 m., differs from the preceding by the red-brown margins, only the inner margin of the fore-
alcmena. wing is blackish. The half-band at the end of the cell is much smaller. — **alcmena** *Godm. & Salv.*, from
Guatemala, is somewhat smaller, with broader, reddish margins. The dark and the white half-band at the
end of the cell are larger and more obliquely placed.

adina. **P. adina** *Hew.*, from Venezuela, is a similar species to *tigranes*, without red-brown subcostal and with oblong white spot at the costal margin of the forewing. The costal margin of the hindwing is strongly arched, the middle discocellular very long and curved.

eulyra. **P. eulyra** *Fldr.*, from Venezuela, is said to be similar to *Episcada alidella*, but much smaller, with white submarginal spots on the under surface.

apuleia. **P. apuleia** *Hew.* (? ♀ = santanella *Hsch.*) (40 a), from eastern Ecuador, is very similar to *Miraleria sylvella* (40 e), but may be known by the strongly angled lower discocellular of the hindwing. The margins, except the yellow-brown costal margin of the forewing, are narrowly dark brown; the half-band at the end of the cell of the forewing is somewhat curved and pointed.

granica. **P. granica** *Hew.* is a similar species, also from Ecuador; but the half-band at the end of the cell is absent. On the under surface the base of the costal margin of the hindwing is yellow and each wing has 2 whitish dots in the apex.

ticida. *yungava.* **P. ticida** *Hew.* (40 e), from eastern Ecuador, has narrow wings with black margins; at the base of both wings yellowish dusting. It closely resembles *Episcada ticidella* (39 e). But on the under surface the margins are black, only the base of the hindwing is yellow. In the apex of the forewing are placed 3, at the distal margin of the hindwing 5 oblong white dots. — **yungava** *Hsch.* is a similar form from Bolivia. The margins are brownish; subcostal of the forewing red-brown, on the underside yellow-brown with only one white dot in the apex of the hindwing.

starkei. *semonis.* **P. starkei** *Stgr.*, from Venezuela, has broader wings and in addition to the usual dark markings and the half-band at the end of the cell an indistinct bar in the cell of the forewing. In other respects this form approaches *adina.* — A form from western Ecuador, similar to *zabina* and *starkei*, which I call **semonis** *form. nov.*, has broad vitreous wings with narrow dark margins and red-brown subcostal, as well as dark half-band and whitish spot at the costal margin of the forewing. On the under surface very minute whitish dots are placed in the dark distal border of the yellow-brown margins.

ladra. **P. ladra** *Stgr.*, from Ecuador, has similar wing-contour to *ticida.* The margins are brown above, yellow-brown beneath except the yellowish costal margin of the hindwing. The end of the cell of the forewing has no markings.

minna. **P. minna** *Schaus*, from Bolivia, is said to have transparent wings of 55 mm. expanse; with narrow dark margins and a yellow streak at the costal margin of the forewing, which is continued in a patch at the end of the cell. There are also yellowish patches at the distal margin. The subcostal of the forewing is red-brown. On the hindwing the cell and the inner margin are dusted with yellowish. On the under surface the margins are red-brown, with 3 white, dark-edged spots in the distal margin of the hindwing.

ilsia. **P. ilsia** *Schaus*, also from Bolivia, is said to be smaller, with broad brown and white half-band at the end of the cell of the forewing; apex broadly brown.

medellina. *ozia.* **P. medellina** *Hsch.* (40 e), from Venezuela and Colombia, is a smaller species with fairly uniformly broad dark margins and triangular half-band as well as white spot at the end of the cell of the forewing. In the basal part both wings are dusted with yellowish. — **ozia** *Hew.* is a very similar form from Ecuador, with yellowish club to the antenna.

antisao. **P. antisao** *Bates* (40 d), from the Upper Amazon, has a sulphur-yellow oblique band at the end of the cell of the forewing to the distal margin. In the ♂ the median and subcostal of the forewing are only slightly yellow-brown, in the ♀ very broadly; here also the veins in the disc of the hindwing, as well as a more or less broad stripe in the dark distal margin, are yellow-brown.

simplex. **P. simplex** *Salv.* (40 b), from Costa Rica and Panama, has delicate wings with narrow brown margins; yellow-brown subcostal and white spot at the narrow half-band of the forewing. On the under surface the veins are yellow-brown with indistinct dots at the apex. In the ♀ the margins are broader, half-band and white spot larger. Before the distal margins are placed whitish dots.

nepiscada. **P. nepiscada** *Hsch.*, from southern Peru, is a similar, smaller species, which recalls forms of *Episcada.* Subcostal and median of the forewing are broadly yellow-brown. The spot at the end of the cell is yellowish. On the under surface an elongate yellow-brown spot is separated off at the costal margin by sulphur-yellow bordering and there are yellow dots in the apex of both wings.

sylvo. *carlia.* **P. sylvo** *Hbn.*, from Guiana, Venezuela and Brazil, in an insignificant-looking species, similar to *alissa*, with wedge-shaped dark spot at the end of the cell of the forewing and white spot at the costal margin, as well as a streak at the end of the upper discocellular and a whitish patch in the hinder angle. — **carlia** *Schaus*, from Central Brazil, is probably, if not the same, at least a very similar form.

hemixanthe. *euritea.* **P. hemixanthe** *Fldr.* (40 d), from Central Brazil, has the proximal half of both wings strongly dusted with yellow. In this it resembles the smaller **euritea** Cram. ~~*Godt.*~~ (= eudema *Godt.*) (40 d), from the same district. The latter has, however, dark bands across the end of the cell and at the inner margin of the forewing, which are absent in *hemixanthe*; the present species on the other hand has a large reddish dot at the base of the hindwing beneath.

cotytto. *parva.* **P. cotytto** *Guér.* (40 c), from Central America and Mexico, has a broad black-brown apex to the forewing and a broad half-band at the end of the cell, together with a white oblique band, which extends to the distal margin. The subcostal is red-brown. — **parva** *Salv.*, from Costa Rica, is smaller than *cotytto*, with narrower black apex to the forewing.

fizella. **P. fizella** *Bdv.*, from Guatemala, is said to be very similar to *Ithomia agnosia* (37 f), with the margin of the forewing widened towards the apex and quadrate spot at the end of the cell. The white oblique band reaches the distal margin.

artena. **P. artena** *Hew.* (40 c) is said to come from Mexico, but a similar form is common in the eastern Andes from Colombia to Peru. *artena* has about the size and appearance of *tigranes* and *adina.* The black half-band at the end of the cell of the forewing is proximally forked, the white band ends at the third median vein. In the apex of the margins, which are red-brown beneath, are placed in the forewing 2 white dots, in the hindwing only one. — *olimba.* **olimba** *Hsch.*, from southern Peru, is distinguished by a yellow base to the hindwing beneath and yellow underside to the abdomen, which is grey in *artena.*

derama. **P. derama** *Hsch.*, also from the border of Peru and Bolivia, recalls *Pseudoscada salonina* (41 b). The wings are diaphanous with narrow margins. Across the end of the cell of the forewing is placed a wedge-shaped black spot and towards the apex a delicate yellow-white half-band, cut off at the 3^rd^ median vein. On the under surface the margins are brown-red with 3 whitish dots in the apex of the forewing.

afrania. **P. afrania** *Hpfr.*, from Bolivia, resembles *Miraleria sylvella* (40 e) and *Episcada salvinia* (39 d), without the red-brown colouring of the subcostal and median of the forewing. The narrow black margins are broadest in the apex and at the inner margin of the forewing. Beside the narrow, uniform black band at the end of the cell is placed a similar white one.

apia. **P. apia** *Fldr.*, from Colombia, is similar to *tigranes*, with narrow margins and pointed dark half-band at the end of the cell of the forewing, and also a broad white one beside it. Subcostal red-brown. On the underside the costal margin of the hindwing is yellowish at the base.

asopo. **P. asopo** *Fldr.*, from Venezuela and Colombia, is smaller than *artena.* The half-band at the end of the cell of the forewing is triangular; the white patch beside it proportionally broader. On the under surface there are 3 whitish spots in the apex of the forewing, 2 in that of the hindwing, as well as 3 indistinct ones at the distal margin. — *asellia.* **asellia** *Hpff.* (= andreas *Weeks*) (40 c), from Peru and Bolivia, is a similar form with the triangular spot at the end of the cell broader costally and beneath not blackish but rust-brown. Moreover the white marginal spots are absent and the 2^nd^ median vein of the forewing is dark-margined. — *aselliata.* In **aselliata** *Hsch.*, from Ecuador, the white oblique band of the forewing is broader and reaches the 2^nd^ median vein; also the white patch at the hinder angle is larger and in the ♀ united with the oblique band.

alissa. **P. alissa** *Hew.* (40 c), from western Ecuador, has a somewhat curved half-band at the end of the cell of the forewing and a small, white, black-edged spot at the costal margin. The apex of the forewing is more strongly rounded. — *alissana.* In **alissana** *Hsch.* the forewing has also a broad white oblique band, which, however, is semitransparent and not sharply cut off at the 2^nd^ median vein, as in the similar *aselliata.* It flies likewise in western Ecuador.

vestilla. **P. vestilla** *Hew.*, from the Upper Amazon, has broader dark margins; the dark oblique band at the end of the cell is continued beyond the 2^nd^ median vein to the distal margin. Behind it follows towards the apex a yellow oblique band. There is in addition yellow dusting in the end of the cell and at the hinder angle of the forewing, as well as in the anterior half of the hindwing. — *ucaya.* In **ucaya** *Hsch.*, from the Ucayali River, the yellow oblique band is whitish. — *sparsa.* **sparsa** *Hsch.* is another form of *vestilla*, from the Upper Napo in Ecuador. The yellow dusting of the wing is much stronger, especially in the whole of the hindwing, where also the veins stand out strongly yellow.

laura. **P. laura** *Stgr.* (40 d), from Colombia, is one of the few brightly coloured small species. It is similar in colouring to *Hypoleria vanilia* (40 g) and *Pseudoscada lavinia* (41 b). The half-band at the end of the cell is somewhat emarginate towards the apex and encloses a white patch. In the dark shaded apical area of the forewing are placed in addition a number of whitish dots at the distal margin and in the disc. The hindwing, especially at the distal margin, is red-brown (more strongly in the ♀) and with dark margins at the apical half.

aletta. *agalla.* **P. aletta** *Hew.* and **agalla** *Godm. & Salv.* (40 d) are 2 very similar forms, the former from Colombia and Venezuela, the latter from Panama and Costa Rica. *agalla* has a sharply defined yellow oblique band at the end of the cell of the forewing and roundish spots before the distal margin. In *aletta* the oblique band is composed of indistinct spots, between which the lower radial remains dark. On the yellow-brown hindwing the veins in *agalla* are bright red-brown, in *aletta* blackish in the distal half. Both forms have a broad red-brown inner margin to the forewing, whilst in a third form, *alope.* **alope** *Godm. & Salv.*, from Panama and Venezuela, which is said to be otherwise similar to *aletta*, the inner margin remains blackish. Another species similar to these forms is *Episcada polita* (39 e).

lilla. **P. lilla** *Hew.* (40 c) has in addition to a yellow oblique band yellow dusting in the cell of the forewing and the costal half of the hindwing, and yellow dots at the distal margin of the forewing. On the under surface the margins are brown with yellow-brown markings, only the base of the hindwing is reddish yellow-brown. In the apex of the forewing are placed beneath 4 white dots, in the distal margin of the hindwing 5 oblong double dots. In western Ecuador at the foot of the Andes.

P. primula *Bates*, from the Upper Amazon, is a species similar to *vestilla*; the dark oblique band at the end of the cell is forked at the 2^nd^ and 3^rd^ median veins. The vitreous parts of both wings are for the most part dusted with yellow. The distal margins are broadly blackish brown, broadest in the apex of the forewing and the middle of the distal margin of the hindwing; on the under surface they are suffused with light brown, yellow-brown at the base and the inner angle of the hindwing. — **tenuis** *Hsch.* (40 c), from Colombia, is a similar form with delicate wings. Between the 2^nd^ and 3^rd^ median veins of the forewing is placed a triangular additional yellow spot. The yellowish oblique band is arc-shaped. On the under surface the margins are paler and in the distal margin of the hindwing there are no white dots as in *primula*. *primula.* *tenuis.*

P. auricula *Hsch.* (40 c), also from eastern Colombia, is larger, with broader black margins. The proximal edge of the distal border of the hindwing is nearly straight, not parallel to the outer edge. On the under surface the edges are dark, except at the end of the cell of the forewing and at the costal and distal margins of the hindwing, where they are yellow-brown. *auricula.*

P. glauca *Hsch.*, from western Ecuador, recalls *Leucothyris quadrata*, but the vitreous spots in the apex of the forewing are absent. The wings have a strong blue-white sheen. The oblique band at the end of the cell is forked at the median veins. At the costal margin there is only one small whitish spot. On the under surface the margins are red-brown, dark-edged; with 4 white dots in the apex of the forewing, and 5 in the apex and distal margin of the hindwing. *glauca.*

28. Genus: **Miraleria** *Hsch.*

Here belong only a few forms, which may be recognised by their having the end of the cell straight in the hindwing. The lower and middle discocellulars are of equal length, weakly curved and alone closing the cell, whilst both the upper discocellular and the upper radial are absent in the ♂. The ♂ has an oblong scent-spot, which, as in *Hypoleria*, is not closed distally. The known forms are plain-looking, medium-sized butterflies, and occur only in the north-west of South America; they are not rare.

M. cymothoë *Hew.* (40 e), from Venezuela and Colombia, has colourless wings with brown margins, of which the distal ones are proximally dentate. The subcostal of the forewing is red-brown; the costal margin of the hindwing and all the margins on the under surface are yellow-brown. Beside the brown half-band of the forewing is placed a whitish band and in the apex of both wings on the under surface 2 whitish dots. — In ab. **flavomaculata** *Hsch.*, from Venezuela, the band at the end of the cell is yellow, and also the dots on the underside. *cymothoë.* *flavomaculata.*

M. sylvella *Hew.* (40 e), from western Ecuador, closely resembles the smaller *Episcada sylpha* (39 e). The ♂ has in addition to the red-brown subcostal a broad streak at the median of the forewing and also a partly reddish brown distal margin to the hindwing. The half-band at the end of the cell is proximally narrower and beside it is placed only a small white spot at the costal margin. In the ♀♀ the red-brown colour is absent above, only the subcostal of the forewing is slightly red-brown. — In ab. **ornata** *Hsch.* the forewing has a broad white half-band, which in the ♀ is sometimes continued, though here less distinct, to the distal margin. *sylvella.* *ornata.*

29. Genus: **Aeria** *Hbn.*

Here begins the group of genera in which the lower discocellular of the hindwing in the ♂ is not angled and forms an acute angle with the median. In *Aeria*-♂ the lower discocellular is slightly undulate, the middle somewhat shorter than the long upper one; in the ♀ the lower is angled, the upper is absent, as the upper radial branches off from the subcostal. The ♂♂ of some forms have at the end of the cell of the forewing on the upper surface a larger spot of thickly massed, glossy brown scales. The few known forms are all very nearly allied and recall species of *Scada* by their yellow-black colouring. They mostly occur in northern South America and in Central America, and are not rare in open places in the woods.

A. eurimedia *Cr.* (= aegle *Hbn.*, indola *Dbl. & Hew.*) (40 f). Typical examples of this species occur only in Guiana and on the Lower Amazon. They have a large, half oval yellow subapical spot in the forewing and also broad black oblique band and margins, there being only an oblong yellow spot at the base. — In the form **negricola** *Fldr.*, from the Upper Amazon, the subapical spot is longer and the yellow basal patch is broader and triangular. On the under surface of both forms the margins are variegated with red-brown. — **pacifica** *Godm. & Salv.* is the form from northern Central America. The black markings are very broad, so that only narrow yellow stripes remain at the base of the forewing and in the disc of the hindwing. The subapical band of the forewing is very large and like the other yellow markings darker than in *eurimedia*. The under surface, as in the latter, is variegated with red-brown. — **agna** *Godm. & Salv.* (40 f) is the form from southern Central America as well as Colombia and Venezuela. It may be recognised especially by the absence of the red-brown colour on the under surface. The pattern and colouring are otherwise similar to the preceding, with somewhat broader yellow bands at the base of the forewing and on the hindwing. — **palmara** *Hsch.* is a form from western Ecuador. It differs from *agna* in *eurimedia.* *negricola.* *pacifica.* *agna.* *palmara.*

sisenna. the narrower yellow subapical band and broader basal triangle on the forewing. ab. **sisenna** *Weym.* is a form of the preceding in which the yellow subapical band of the forewing is broken up into 2—3 small yellow spots. It occurs together with the principal type in Ecuador.

elara. **A. elara** *Hew.* is a smaller, delicate species from the Upper Amazon, with proximally sinuous yellow subapical band and narrower distal margin to the hindwing. On the under surface it shows the red-brown *clarina.* colour especially at the hinder angle of the forewing and the inner angle of the hindwing. — **elarina** *Oberth.*, from the Lower Amazon, is somewhat larger, with narrower wings and brighter colouring. The special character of this form is the presence of a black triangle at the end of the cell of the hindwing, extending from the costal margin.

elodina. **A. elodina** *Stgr.*, from Venezuela, is pale yellow and has a narrow black oblique band across the end of the cell of the forewing, the costal and distal margins of the forewing are also black and the costal margin of the hindwing is narrowly so. *elodina* may be recognised especially by the narrow yellowish costal margin of the hindwing beneath.

olena. **A. olena** *Weym.* (40 g), the only species from Central Brazil, differs from the preceding by the absence of the white marginal dots on the under surface. It is of only small size, and has delicate, blackish colour with narrow yellow subapical band on the forewing and longitudinal band on the hindwing. The yellow basal triangle in the forewing on the contrary is broad.

30. Genus: **Velamysta** *Hsch.*

Under this name I unite a small group of species which differ from *Hypoleria* in the absence of the oblong scent-spot in the middle of the costal margin in the ♂. Costal and subcostal in this genus separate gradually and only approach one another again behind an indistinct scent-spot which is placed at the extremity of the cell, after which, parting once more, they reach the margin in a curve. The scent-spot is mostly marked by a whitish angular spot on the under surface and on the upperside covered by a hair-pencil arising at the end of the cell. In the ♀ costal and subcostal are coincident to one half, the upper discocellular is absent and the lower is mostly angled, which is not the case in the ♂. There belong here only a few rare, medium-sized forms, which in the markings recall species of *Leucothyris* and *Dismenitis*. They occur apparently only in high-lying mountain-forests of the eastern Andes from Ecuador to Bolivia.

crucifera. **V. crucifera** *Hew.* (40 f), from Ecuador, is similar to *Dismenitis theudelinda* (41 d) and *V. pardalis*, but somewhat smaller. The forewing is shaded with light brown, with whitish dots, dark borders and a brown, irregular spot at the end of the cell of the forewing. The hindwing has bluish sheen and a peculiar, broad black-brown colouring at the distal margin, in which are placed large whitish distal-marginal spots. The costal margin of the hindwing is blackish to the apex with a wedge-shaped spot at the end of the cell. In the ♂ the colouring is on the whole somewhat weaker than in the figured ♀.

torquatilla. *peninna.* **V. torquatilla** *Hew.* (40 f, as *peninna*) and **peninna** *Hew.*, both from Bolivia, are very similar, so that I at first regarded them as *one* species. Only after seeing a specimen of the true *peninna* I discovered my mistake and it seems to me now that the two even belong to different genera. The specimen figured is a ♀ of *torquatilla* (**not** *peninna*); in the ♂ the dark markings are weaker, especially in the disc of the forewing; and on the hindwing the median band is only indicated at the apex. On the under surface all the margins are rust-brown. — In *peninna* the otherwise similar marking is on the whole weaker and lighter brownish. In the ♀ the oblique band of the hindwing is placed nearer to the distal margin.

pardalis. **V. pardalis** *Salv.* (40 e) is probably also best placed in this genus. The neuration appears to vary somewhat, as I possess a ♂ with the lower discocellular of the hindwing angled, much as in *Callithomia*, whilst in other specimens this vein is not angled. Superficially this rather rare species recalls *Dismenitis theudelinda* (41 d), with which it occurs in the highest mountain-forests of the Andes in Ecuador. It may be known by the dark oblique band at the end of the cell and the spots between the end of the cell and the apex of the forewing. In the ♀ the hindwing is of the same brownish colour as the forewing.

pupilla. **V. pupilla** *Hew.* (40 f), from Bolivia, is smaller, with similar markings and lighter margins, especially the costal margin of the forewing, which is reddish. The half-band at the end of the cell and the spot in the cell of the forewing are narrower. The dark marking in the apex of the hindwing is only very *dispersa.* weak in the ♂. The ♀ probably resembles *dispersa*, if this is not indeed the ♀ of *pupilla*. — **dispersa** *Weym.*, from Bolivia, has very similar markings to the ♀ of *torquatilla*. The dark patches at the apex and between the cell and distal margin of the forewing are fainter. — Another similar form, but somewhat lla *circilla.* larger, is **circilla** *Hew.*, from Bolivia. The wings have a yellowish tint, with similar markings on the forewing to *crucifera*, but with yellow-red costal margin and yellow spot at the end of the cell. The hindwing has in the ♀ a proximally dentate dark distal margin, with 2 white dots at the apex and a half-band at the end of the cell.

anomala. **V. anomala** *Stgr.*, from the Cauca Valley, has almost unmarked wings and recalls *Episcada canilla* (39 c) and *paradoxa*. The ♂♂, however, have the characteristic white spot at the costal margin of the hindwing beneath. The wings have a slightly yellow-green appearance, with no other markings. The costal and inner margins of the forewing are brown, the distal margins only very finely edged with dark.

31. Genus: **Hypoleria** *Godm. & Salv.*

The ♂♂ may be recognised by the elongate oval scent-spot at the costal margin of the hindwing and by the non-angled lower discocellular, which forms an acute angle with the median, is curved inwards and mostly aborted at the lower radial. In the ♀ costal and subcostal are coincident to the middle, otherwise the neuration is as in the ♂.

The forms which belong here have mostly a rounded apex to the forewing and roundish hindwing. In addition to those with colourless wings there are also gay-coloured species, especially a group with red-brown band in the apex of the forewing, such as may be found in *Leucothyris* and also in *Pseudoscada*. Some forms also resemble the latter genus in other respects, so that it is often not easy to differentiate ♀♀ of the two genera.

Of this not very extensive genus also the region of the eastern Andes produces the largest number of species, yet some forms also occur as far as South Brazil and in Central America.

vanilia. *libera.* *fumosa.* **H. vanilia** *H.-Schäff.* (40 g), from Colombia, is very similar to the smaller *Pseudoscada lavinia* (41 b). The forewing is shaded with dark, with black margins and 2 oblique bands at the end of the cell and before the apex. The interspace is divided by the dark-marked veins into a number of whitish spots. The hindwing is rust-brown, with broad border at the apex; in the ♀ with yellow-brown, proximally dark brown costal margin, in the ♂ transparent at the costal margin. — **libera** *Godm. & Salv.* is a local form of the preceding from Central America (Panama, Costa Rica). It has more strongly marked dark patches and brighter red-brown colour on the hindwing. — **fumosa** *Godm. & Salv.*, from Panama, is a form of the preceding with darkened apical spots and triangular spot in the cell of the forewing.

hyalinus. **H. hyalinus** *F.*, from Brazil, is a doubtful form and unknown to me in nature. According to BUTLER it is a form similar to *vanilia*, with transparent forewing and black margins, and also a macular band in the apex. Hindwing red-brown with narrow black distal border.

fausta. **H. fausta** *Stgr.*, from the Upper Amazon, is a smaller species with brownish hindwing and base of the forewing. Across the end of the cell of the forewing is placed a broad dark half-band, which is divided at the median veins. In the end of the cell and at the distal margin there are whitish patches.

alema. **H. alema** *Hew.*, from Colombia, has according to HEWITSON's figure transparent yellowish wings with dark margins and narrow band across the end of the cell of the forewing; before the distal margin of the latter with whitish dots. On the under surface the margins are reddish, except the blackish costal margin of the hindwing.

ina. **H. ina** *Hew.*, from Ecuador, is a similar species with a row of whitish submarginal dots at the distal margin of the forewing and without markings at the end of the cell. The inner margin of the hindwing is broadly reddish yellow-brown. In this the species recalls *Napeogenes apulia* (35 f).

ocalea. **H. ocalea** *Dbl. & Hew.* (41 g), from Venezuela, Trinidad and Colombia, has light yellow-brown wings with dark margins and an oblique band across the end of the cell of the forewing, which is continued beyond the 3rd median vein. The median of the forewing and the veins of the hindwing are yellow-brown. The macular band of the forewing is yellowish. — The white, longitudinally ribbed eggs are according to GUPPY attached singly about 2 ft. above the ground. The larvae hatched in 5 days. They are transparent, green, with whitish head and take 9 days to feed up.

gephira. **H. gephira** *Hew.* (41 g), from Colombia and the adjoining parts of Central America, is a similar species with broader margins; with whitish spots in the apex of the forewing and at the distal margin of the hindwing. Moreover the veins in the distal half of both wings are black.

The following forms have a broad yellow-red subapical band in the forewing and hence resemble the similarly marked forms of *Leucothyris* and *Napeogenes*, and also certain Erycinids.

chrysodonia. *aureliana.* *karschi.* *cidonia.* **H. chrysodonia** *Bates*, from the Upper Amazon, is almost the same size as **aureliana** *Bates* (= trombona *Srka.*) (41 a), from the same district. In the former the yellow-red colour is proximally semitransparent. The 2nd and 3rd median veins of the forewing are only narrowly margined with dark. In *aureliana* the yellow-red band is broader and the extremity of the median and also its branches are broadly margined with dark brown, so that between the veins only 2 smaller vitreous spots remain. Moreover, the base of both wings is also shaded with dark. The antennae are black in both species, whilst in **karschi** *Hsch.*, which is otherwise very similar to *chrysodonia* and flies at the Upper Napo in Ecuador, they have a yellow-brown club. In *karschi* the yellow-red subapical band only reaches the 3rd median vein. — Another similar form is **cidonia** *Hew.*, from Colombia. In this the antennae are black and between the median veins there are 2 larger colourless vitreous patches. The hindwing has a yellowish submarginal band.

orolina. *oculata.* *sedusa.* **H. orolina** *Hew.* (40 g), occurring at the Upper Amazon as far as the foot of the Andes in Peru and Ecuador, is a smaller, delicate species with almost colourless wings and yellow-brown subapical band. — In **oculata** *Hsch.*, from the Upper Napo, which is the same size, there is another rounded vitreous spot between the end of the cell and the band, which is narrower. — A similarly marked form, but larger than *oculata*, from Ucayali, which I call **sedusa** *form. nov.*, has a white patch at the end of the cell of the forewing and 3 whitish dots before the distal margin. The vitreous areas of both wings are slightly shaded with brownish.

oncidia. *tenera.* *quadrona.* **H. oncidia** *Bates*, from the Upper Amazon, has similar markings to *orolina*; it is somewhat smaller and has whitish dusting in the end of the cell and before the distal margin of the forewing, and also in the disc of the hindwing. — A very nearly allied form is **tenera** *Srnka*, from Pebas, which has 3 white dots between the median veins of the forewing, whilst only 2 of these are said to be present in *oncidia*. — In a further form from Yurimaguas, on the Upper Amazon, which I call **quadrona** *form. nov.*, the yellow-red band is only very narrow and between it and the broad band at the end of the cell of the forewing there is another whitish patch.

cymo. *indecora.* **H. cymo** *Hbn.* (= galita *Hew.*) (41 a) has a dark half-band across the end of the cell of the forewing and adjoining it a white patch. The distal margin of the hindwing is red-brown, with dark edges. On the under surface the distal margins together with the costal margin of the hindwing are light red-brown with dark edges. — In the form **indecora** *Hsch.* (= sylphis *Kaye*), from British Guiana, the red-brown colour at the distal margin of the hindwing is absent. At the distal margin of the forewing there are white dots, and the margins of the under surface are yellow-brown.

garleppi. **H. garleppi** *Hsch.* is similar to the preceding, with narrower white patch at the end of the cell and without the whitish dots at the apex of the forewing.

famina. *oriana.* **H. famina** *Hsch.* (41 a), from Peru, has the wings more strongly dusted with white and an angular smoke-brown spot in the cell of the forewing. On the under surface the dark margins are variegated with yellow-brown. — In **oriana** *Hew.*, from the Upper Amazon, the costal and distal margins of the hindwing are much broader and leave in the disc only a vitreous longitudinal band, just as in *Leucothyris onega*.

virginia. **H. virginia** *Hew.* (40 g), from the Amazons, has smoke-brown wings with broad dark margins and broad apex to the forewing. Across the cell of the latter is placed a wedge-shaped oblique band and towards the apex a broad, segment-shaped, white band.

xenophis. As **H. xenophis** *spec. nov.* I designate an isolated species from the Rio Ucayali, with elongate, yellow-dusted wings, which recalls *Episcada canilla* (39 c). The forewing has before and behind the end of the cell a dark pointed half-band, as well as dark margins. The greater part of the hindwing is dusted with yellow; it has likewise dark margins. On the under surface all the margins are red-brown, dark-edged, without white marginal dots.

coenina. *adornata.* **H. coenina** *Hew.* (40 g) differs considerably from most of the other forms by the pointed apex of the forewing and the absence of marking at the end of the cell. The wings are dusted with grey and have fairly uniform black margins. The latter are black also beneath. — In ab. **adornata** *Hsch.* the margins are bright red-brown on the underside, especially at the base and the anal angle of the hindwing.

veronica. **H. veronica** *Weym.*, from Colombia, is larger than *coenina*; the distal margins are proximally dentate. Across the end of the cell of the forewing there is a black triangle and at the anal angle of the hindwing a rust-coloured oblong spot. The species resembles *Pteronymia thabena* and *tucuna*.

oreas. *proxima.* **H. oreas** *Weym.* (41 a), from southern Brazil, has broad, glossy bluish white wings with dark margins and on the forewing whitish dots at the distal margin. The half-band at the end of the cell is broad, especially in the ♀. — A nearly allied form is **proxima** *Weym.*, likewise from South Brazil. Here the wings are colourless, the margins above grey-brown and beneath yellow-brown. In *oreas* the margins are red-brown beneath.

mirza. *riffarthi.* **H. mirza** *Hew.* (= lavinia *Hew.* p., ryphaeno *Oberth.*) (41 a), from western Ecuador, has a narrower half-band in the forewing and whitish dots at the end of the cell and the distal margin, of which those before the apex are proximally bounded by a weak oblique band. — **riffarthi** *Hsch.*, from Ecuador, has similar, but stronger markings. But here the forewing is further distinguished by a white half-band between discocellular and apex.

cassotis. *rhene.* *cajona.* **H. cassotis** *Bates*, from Guatemala, and **rhene** *Godm. & Salv.* (41 a), from Panama, are very similar to each other. In *cassotis* the half-band at the end of the cell of the forewing is proximally forked, in *rhene* pointed. Moreover, the cell of the hindwing is said to be much longer in *rhene*, the lower radial on the contrary very short. — **cajona** *Hsch.*, from south-eastern Peru, is another similar form with broader black apex to the forewing and without reddish subcostal.

32. Genus: **Pseudoscada** *Godm. & Salv.*

This genus differs from *Hypoleria* in the absence of the oblong scent-spot in the ♂. Costal and subcostal are almost entirely coincident. The separation of the two genera, however, cannot be rigidly carried out, as in some species an oblong raised patch combined with an indistinct costal indicate the transition. On the other hand *Pseudoscada* shows also relationship to *Hymenitis*, so that it is doubtful to which genus some species belong.

To *Pseudoscada* are referred a number of small species, some of which are also externally very similar to forms of *Hypoleria.* The sources of the Amazon and Brazil produce the most species, whilst from Central America only a few species are known from the southern part.

lavinia. troetschi.

P. lavinia *Hew.* (= saturata *Stgr.*) (41 b), from eastern Colombia, much resembles *Hypoleria vanilia,* but is smaller and the shape of the wings is different, as is also the neuration. — An allied form is **troetschi** *Stgr.*, from Costa Rica. The base of the forewing is colourless and the hindwing has only at the dark distal margin a broad red-yellow stripe. The rest of the hindwing is colourless.

florula. exornata.

P. florula *Hew.*, from Cayenne, has a similar pattern to the figured local form **exornata** *Hsch.* (41 b), from British Guiana. It lacks, however, the red-brown colour in the distal margin of the hindwing, which distinguishes *exornata.* On the under surface the margins in both forms are yellow-brown. *exornata* resembles *Napeogenes potaronus* (35 f), which likewise flies in British Guiana, and also *Hypoleria cymo* (41 a).

egla. aureola. sarepta.

P. egla *Hew.*, from the Upper Napo, and the two following forms are very similar to *Hypoleria oncidia* and its allies, as well as *Napeogenes corena* (36 b). *egla* has a broad yellow-red subapical band in the forewing and at the hinder angle 2 separated, roundish vitreous spots between the median veins. — In **aureola** *Bates* (41 b) the yellow-red band is still broader, so that at the hinder angle only one larger vitreous spot remains. This form flies on the Upper Amazon. — In **sarepta** *Hew.*, from the Rio Negro, the yellow-red band is proximally bordered by a broad brown stripe, which extends from the end of the cell beyond the 2. median vein to the hinder angle, as in *Napeogenes corena.*

utilla.

P. utilla *Hew.* (= pusio *Godm. & Salv.*) (41 b), from western Colombia and Ecuador, recalls *Hypoleria mirza* (41 a), but is considerably smaller and the whitish dots in the apex of the forewing are not proximally surrounded with dark.

seba. timna. arzalia.

P. seba *Hew.*, from eastern Ecuador, has broader distal margins and no white dots at the distal margin of the forewing, on the other hand a faint white macular oblique band at the end of the cell. — A similar form is **timna** *Hew.* (41 c), from Venezuela and the eastern Andes from Ecuador to Bolivia. Here the white oblique band is stronger and the veins intersecting it are dusted with white. — Another similar form is **arzalia** *Hew.* (41 b), from Bolivia, with broader black apex, broader half-band at the end of the cell of the forewing and a broader, arched, white oblique band.

adasa. acilla. jessica. erruca.

P. adasa *Hew.* (41 c), from southern Brazil, is larger than the preceding, and has only a whitish spot at the end of the cell and whitish dots at the distal margin of the forewing. — **acilla** *Hew.* is a similar form, but smaller, with pointed half-band at the end of the cell and narrower distal borders. — **jessica** *Hew.* is the same size as *adasa,* but has a pointed half-band like *acilla.* It differs from the latter in the neuration of the hindwing, the lower discocellular forming a very acute angle with the median and ending proximally to the middle discocellular, in *acilla* on the contrary distally to it. — A fourth similar form is **erruca** *Hew.*, with the distal margins more strongly dentate at the veins and white half-band beside the end of the cell on the forewing. It is said to be further distinguished from *adasa* by its more elegant form and to have the end of the cell of the forewing placed almost transversely to the length of the wings. — All four forms come from southern Brazil and are not easy to differentiate. They might even belong to different genera, which can only be determined with certainty from the types.

There follows now another group of forms whose ♂♂ are distinguished by the more pointed apex of the forewing.

fallens.

In **P. fallens** *Hsch.* (41 c), from Central Brazil, the basal half of both wings is dusted with yellow, especially in the ♀, which on account of the broader distal borders strongly resembles *Pteronymia euritea* (40 d). The half-band at the end of the cell of the forewing is strongly pointed. The base of the hindwing beneath is red-brown, in *euritea* yellow.

salonina. trepotis. subtilis.

P. salonina *Hew.* (41 b), from Bolivia, has colourless wings with dark brown margins and half-band at the end of the cell of the forewing and also a yellowish oblique band towards the apex. — A very similar form, with somewhat broader margins, flies also in Paraguay. — As **trepotis** *form. nov.* I designate a form like *salonina* with white instead of yellow oblique band on the forewing. It flies likewise in Bolivia. — **subtilis** *Hsch.*, from eastern Ecuador, is distinguished from *salonina* by yellowish dusting on the wings and weaker half-band across the end of the cell of the forewing.

emyra.

P. emyra *Hsch.*, from Central Brazil, is a similar form to *arzalia.* The black apex of the forewing and the triangle at the end of the cell are broader. The 3. median vein remains black in the white oblique band. The distal margin of the hindwing is narrower.

33. Genus: **Dismenitis** *Hsch.*

The species of this genus were formerly united with those of *Hymenitis.* In the ♂♂ the lower radial of the hindwing is completely developed, hence the cell is closed. In the ♀ the upper radial is partly coincident with the subcostal; the lower radial is distinctly present; the lower discocellular is angled, with short upper arm and recurrent vein.

The genus contains for the most part imposing-looking species, some of them brightly coloured, which inhabit especially the high mountain range of the eastern Andes near the Equator. Some species also fly in the mountains of Central America.

zavaleta.
amaretta.
matronalis.
telesilla.

D. zavaleta *Hew.* (41 c), from Colombia and Peru, has yellow-dusted wings, a transverse band in the cell of the forewing and broad black distal margin to the hindwing with white dots. The distal half of the antenna is yellowish. — In the form **amaretta** *Hsch.*, from eastern Ecuador, the transverse band through the cell of the forewing is absent, on the other hand the basal third of the cell is dark-shaded. The distal margin of the hindwing is narrower and the white dots are smaller. In the ♀ the base of the hindwing is broadly black. — **matronalis** *Weym.*, from Ecuador and the Upper Amazon, is a form of *zavaleta* in which the white marginal dots are entirely absent above and beneath. — **telesilla** *Hew.*, from western Ecuador, has a similar ♂ to *amaretta*, with weaker yellow dusting and without the dark half-band across the end of the cell of the forewing. The distal margin of the hindwing is broader with very small white dots. The ♀, in which the distal margin of the hindwing is twice as broad, may be recognised especially by a large red-yellow spot at the inner margin of the hindwing.

gonussa.
petersi.

D. gonussa *Hew.* (41 c, d, ♂, ♀), from Colombia, is somewhat larger than the preceding species. The ♂ is similarly marked to the ♀ of *zavaleta.* The half-band at the end of the cell of the forewing is broader and the wing has white marginal dots on the upper surface also. In the ♀ the black markings are much broader and the yellow dusting of the ♂ is in this red-brown. The white marginal dots of the hindwing are much larger. — **petersi** *Dew.*, also from Colombia, is a form of the preceding in which the red-brown colour on the forewing and at the apex of the hindwing becomes bright yellow.

zygia.
sosunga.

D. zygia *Godm. & Salv.* (41 d), from Costa Rica, is similar to *gonussa.* In the ♂ not only the transverse band in the cell but also the whole of the forewing is shaded with dark. The yellowish spots round the end of the cell are larger and joined into a band. The disc of the hindwing is brownish yellow near the veins, especially at the inner margin. In the ♀ the inner margin of the forewing is red-brown in the middle as far as the median, as is also the entire disc of the hindwing. The black distal margin is narrower than in *gonussa* and not proximally dentate at the veins. — **sosunga** *Reak.* is a form from Honduras with broader yellow oblique band on the forewing and broadly blackish apex to the hindwing. Hence in the ♂ only the basal half of the hindwing is red brown.

dircenna.
pittheis.
barretti.

D. dircenna *Fldr.* (41 c) strongly recalls certain species of the genus *Dircenna,* such as *epidero,* etc., but may be recognised by the neuration of the hindwing. The forewing has 2 narrow half-bands across the end of the cell and through the middle of it. The black distal margin of the hindwing is broadened and dentate at the anal angle and in the ♀ there is a roundish black spot at the end of the cell. This interesting species flies in the eastern Andes from Colombia to Bolivia. — **pittheis** *Weym.*, from Colombia, is a similar form, without the bands on the hindwing and with diaphanous forewing. On the under surface the margins are yellow-brown, with a white dot at the apex and the distal margin of the hindwing. — **barretti** *Dan.* is another similar form from Peru without the bands in the cell of the forewing and at the end of the cell and the distal margin of the hindwing. There are 4 white dots in the black distal margin of the hindwing above.

duilia.
nepos.

D. duilia *Hew.* (41 d) is one of the largest and most beautiful species of the whole family. When the sunlight falls on the bluish-white-dusted wings the most magnificent colour effects are produced. On the forewing the veins and margins are edged with dark brown; only beyond the end of the cell at the costal margin there is a yellow-red stripe. The hindwing has a broad dark brown costal margin and a broad red-brown inner margin as far as the 1. median vein. *duilia* flies in the eastern Andes from Colombia to Bolivia and is not rare at certain places. A deceptively similar species is the smaller *Hymenitis alphesiboea* (41 f). Another similar form is **nepos** *Weym.* (= lora *Stgr.*), from Colombia. The streak at the costal margin of the forewing is only half as long and yellow-brown. The costal margin of the hindwing is much more narrowly bordered with dark. The inner margin is likewise narrower and dark brown, only reddish at the base. The neuration is also somewhat different.

theudelinda.
hermana.

D. theudelinda *Hew.* (41 d), from the eastern Andes from Colombia to Peru, is very similar to *Velamysta pardalis* (40 e). But the band-like marking at the apex of both wings is absent, on the other hand a dark spot is placed at the end of the cell of the hindwing. The marking is fairly similar in both sexes. — **hermana** *Hsch.*, from Ecuador, is a very similar form. In the ♂ the costal and subcostal of the hindwing are coincident to the end of the cell; only one hair-pencil is present, the upper radial is absent. The dark spots at the end of the cell on both wings are smaller. The white marginal dots of the hindwing are triangular. — **zalmunna** *Hew.*, from Ecuador and Peru, is another similar form with narrower margins, narrower marking across the end of the cell of the forewing and without a spot across that of the hindwing in the ♂. *zalmunna.*

D. cleomella *Hew.*, from Bolivia, is likewise similar to *theudelinda*, but the yellowish club of the antenna is distinctive. The costal margin of the forewing is not yellow-brown. Both wings have yellow tone. The pattern is somewhat different from that of *theudelinda.* The distal margin of the forewing is more broadly margined with black between the teeth. The white marginal dots of the hindwing are smaller. The spots at the end of the cell on both wings narrower, band-like. *cleomella.*

D. crinippa *Hew.* (41 d), from Bolivia, has brown, dentate distal margins and in addition to the half-band of the forewing a spot in the cell, as well as yellowish dots at the end of the cell and before the distal margins. *crinippa.*

A similar, somewhat smaller species, which I call **D. lauta** *spec. nov.*, differs especially in the absence of the band-spot in the cell of the forewing. It is very similar to *Hymenitis umbrosa,* from which it may be distinguished both by the size and the different neuration. In the ♀ the two white dots of *umbrosa* at the apex of the hindwing beneath are wanting. *lauta.*

In **D. cleonica** *Hew.* (41 e), from eastern Colombia and Ecuador, the markings are similar, without the spot in the cell of the forewing and with yellowish colour in the basal half of the hindwing and a white spot at the end of the cell of the forewing. — **panthyale** *Fldr.*, from Colombia, is similar to the preceding, without the yellowish colour on the hindwing and with red-brown subcostal and median to the forewing. *cleonica.* *panthyale.*

D. hewitsoni *Hsch.* (41 e), from eastern Ecuador, has transparent wings with yellow-brown sheen, with fine, darker margins and no other markings. Subcostal and inner margin of the forewing are light brown. *hewitsoni.*

34. Genus: **Hymenitis** *Hbn.*

In this genus the lower discocellular of the ♂ is not angled and is undeveloped towards the costal margin, hence the cell open. The principal difference from *Dismenitis* is seen in the ♀♀. In these the upper radial of the hindwing is coincident with the subcostal to one-half, in *Hymenitis* it is coincident with the lower radial half-way. Hence the middle discocellular is absent here.

To *Hymenitis* belong mostly medium-sized, plain-looking forms, which resemble certain species of *Leucothyris* and *Pteronymia,* but may be recognised by the non-angled, slightly curved lower discocellular, which closes the cell almost alone. Some larger species recall forms of *Velamysta* and *Dismenitis* in the pattern and colouring. This genus is rather rich in species, of which the south-west of South America produces the largest number, but Central America and Mexico have also some characteristic forms.

H. albinotata *Btlr.* (41 g), from Colombia, recalls *Velamysta crucifera* (40 f) and *torquatilla* (40 f) by the dark markings of the hindwing; the forewing is similar to that of *Dismenitis gonussa* (41 c, d). The colour is yellowish, at the base of both wings red-brown. Particularly striking are the two white dots in the apex of the forewing. — **kedema** *Hew.*, from Venezuela, is a similar, smaller form with weaker, pale colouring and indistinct band-marking at the distal margin of the hindwing. — **furina** *Godm. & Salv.* is a form of *albinotata* from Panama with dark base to the cell of the forewing, lighter base to the hindwing and weaker black markings at the distal margin of the hindwing. *albinotata.* *kedema.* *furina.*

H. andromica *Hew.* (41 f), from Venezuela, Colombia and western Ecuador, and its subspecies are some of the commonest and most widely distributed local forms. In typical *andromica* the colourless wings have a slight smoke-brown tinge and black-brown margins and patches. Beside the pointed half-band of the forewing runs a broad, undulate white oblique band from the costal to the distal margin. In the apex are placed 2 whitish vitreous spots, which in the ♀ are completely enclosed by the broad black apex. — As **dromica** Staudinger (*i. l.*) designated a smaller form from Colombia with narrow margins, weak half-band and narrow white oblique band at the end of the cell of the forewing. — **andania** *Hpffr.* (= lyrina *Stgr. i. l.*) is a form from eastern Ecuador, Peru and Bolivia with vitreous, black-margined wings and interrupted white oblique band on the forewing. The apex of the forewing is more narrowly black and in the ♀ the hyaline spots are not proximally bordered with black. — **lyra** *Salv.* is the form from Central America (Guatemala, Costa Rica). It is distinguished from *andania* by having the half-band of uniform breadth and not pointed, and a narrower white macular oblique band on the forewing. The black tooth bordering the subapical hyaline spots at the costal margin is absent. *andromica.* *dromica.* *andania.* *lyra.*

H. nero *Hew.* (41 e), from Central America, Costa Rica to Mexico, is similar to the preceding, larger, with broader margins and patches. The subcostal of the forewing and the distal margins are partly red-brown. On the underside of the forewing the 2 white apical dots of *lyra* are absent. *nero.*

oto. **H. oto** *Hew.* (41 e), from Honduras and Guatemala, has broad black apex to the forewing and a broad half-band at the end of the cell as well as a white oblique band. The subcostal of the forewing and the distal margin of the hindwing are partly red-brown.

morgane. **H. morgane** *Hbn.-G.* (41 e), from Mexico and Honduras, is noteworthy on account of the rust-brown margins. Behind the irregular half-band at the end of the cell of the forewing an indistinct, narrow white macular band runs from the costal to the distal margin. — *moschion.* In **moschion** *Godm.*, from Mexico, the rust-brown apex and the half-band across the end of the cell of the forewing are said to be narrower; the white spots do not form a distinct band; the genitalia of the ♂♂ differ from those of *morgane.*

annetta. **H. annetta** *Guér.*, from Mexico and Central America, is smaller than *morgane*, with narrower, dark brown margins and a half-band on the forewing. From the end of the cell to the distal margin of the forewing runs a row of white spots, which are not parallel with the dark half-band, much as in *Pteronymia simplex* (40 b). In addition there are 2 white dots at the apex and one at the hinder angle.

nerina. **H. nerina** *Hsch.*, from Colombia, is of the same size as *andromica* and has similar markings to *nero* (41 e). The white oblique band of the forewing is broken up into spots. The margins are brown-grey above and light brown beneath, with 2 white dots in the apex of the forewing and one in that of the hindwing.

polissena. **H. polissena** *Hew.*, from western Ecuador, closely resembles a form from Costa Rica which I call *umbrana.* **umbrana** *form. nov.* (41 f). Both forms have diaphanous wings with narrow black margins and pointed half-band at the end of the cell of the forewing, and also white dots at the end of the cell and the distal margin of the forewing. *umbrana* has further white dots at the apex of both wings, *polissena* on the contrary only 2 white dots in the red-brown apex of the forewing beneath. In *umbrana* the abdomen beneath is whitish, in *polissena* yellowish. In the ♀♀ the margins and half-bands and also the white spots are broader.

diaphanus. **H. diaphanus** *Drury* (= unzerina *Hbst.*), from the Antilles (Jamaica), which is also said to occur in Texas, is a similar species with narrow distal margin to the forewing and fine distal border to the hindwing. The half-band at the end of the cell of the forewing is of uniform breadth.

cubana. **H. cubana** *H.-Schäff.*, from Cuba, has similar markings to *oto*, but very narrow wings and narrower margins. The half-band of the forewing is constricted in the middle and forked at the median. The white oblique band is narrower than in *oto.*

alphesiboea. **H. alphesiboea** *Hew.* (41 f), from eastern Ecuador, is a copy on a small scale of *Dismenitis duilia* (41 d) and apart from the size can only be recognised with certainty by the different neuration. In the ♀ the upper radial of the hindwing is coincident with the lower to one-half, in *duilia* with the subcostal.

ortygia. **H. ortygia** *Weym.* (41 f), likewise from the eastern slopes of the Andes in Ecuador, stands in the same relation to *Dismenitis cleonica* (41 e). In the figure of the ♂ the white dots at the end of the cell and the distal margin of the forewing stand out too little; in the ♀ they are much stronger.

enigma. **H. enigma** *Hsch.* (41 f), from Bolivia, has yellow-brown costal margin of the forewing and dark brown, dentate distal margins, and also yellowish patches at the end of the cell of the forewing and before the distal margins. On the under surface all the margins are ochre-coloured. — *umbrosa.* A similar form is **umbrosa** *Hsch.*, from the high mountains of the eastern chain of the Andes in Ecuador. In it the margins are narrower, the yellow patches more indistinct, and in the forewing only the subcostal is yellow-brown. In the ♂ the end of the cell of the forewing has no marking. — *esula.* **esula** *Hew.*, from Colombia, is similar to the preceding; the margins are still narrower, the yellow patches are absent, on the other hand the hindwing is yellowish at the inner angle. Moreover in the ♀ also the end of the cell of the forewing is without marking. — *depauperata.* **depauperata** *Bdv.*, from Guatemala, which is unknown to me in nature, is probably a form similar to *enigma.* It is said also to resemble *zalmunna* and to be distinguished from it by the narrower distal margin of the hindwing and the absence of the white spots.

sappho. A species from Bolivia which I received as **H. sappho** (*Bang.-H. i. l.*), of the same size as the preceding, has colourless wings with black-brown margins, of which the distal ones are dentate at the veins. Beside the irregular half-band at the end of the cell of the forewing is placed at the costal margin a white spot, and at the distal margin of both wings there are small whitish patches. Beneath the margins are deep red-brown, at the base of the hindwing yellow-brown.

gardneri. **H. gardneri** *Weeks*, from Bolivia, is a similar form to *pittheis*, without the band in the cell of the forewing. The costal margin of the forewing is red-brown to the end of the cell. At the end of the cell of the forewing and before the distal margins are placed white patches.

libethris. **H. libethris** *Fldr.* (41 f), from Colombia to Peru, and a number of similar forms are distinguished by a bright yellow oblique band in the forewing. *libethris* differs from the very similar *dercetis.* **dercetis** *Dbl. & Hew.*, from Venezuela, Colombia and Ecuador, in the more elongated forewing and the shorter inner margin of the hindwing. Moreover the base of the hindwing beneath is yellow. — *ochretis.* **ochretis** *Hsch.*, from Colombia to Bolivia, is of the same size and shape as *dercetis.* The oblique band of the forewing is broken up into 2 yellow-brown spots. In the apex of each wing there are 2—3 further yellowish patches. The base of the hindwing beneath is yellow, on the other hand the white dots in the apex of the forewing are absent.

lydia. **H. lydia** *Weym.*, from Ecuador, has a broad, yellow-brown costal margin to the forewing, in which it recalls *Pteronymia apuleia* (40 a) and *Hymenitis enigma* (41 f). The pattern is as in *ochretis*, with smaller, indistinct, yellowish patches.

quinta. **H. quinta** *Stgr.*, from the Cauca Valley in Colombia, is one of the Ithomiids which are entirely without markings on the wings and recalls the very similar *Episcada paradoxa*, with which it also agrees in size, and also *Velamysta anomala*, *Napeogenes hypsaea*, *Ithomia dimidiata* and other forms with unmarked, colourless or yellowish wings. *quinta* is distinguishable from the similar species of other genera by the large, non-angled lower discocellular of the hindwing, which almost alone closes the cell.

35. Genus: **Heterosais** *Godm. & Salv.*

In this last genus of the Ithomiids the cell of the hindwing in the ♂♂ is open, the middle discocellular and upper radial being absent. The subcostal is strongly developed and curved in the middle. The lower discocellular is directed proximad and forms with the lower radial an acute angle, from the point of which a vein runs into the open cell. In the ♀ the cell is closed, as the lower discocellular is angled and reaches to the upper. Middle discocellular and upper radial are absent here also.

The species of this genus are not numerous. They occur mostly in the north-west of South America and the adjoining districts of Central America. They are mostly inconspicuous forms of medium size, which are found with the similar species of other genera in the undergrowth of the primeval forests.

nephele. *gedera.* **H. nephele** *Bates*, from the Upper Amazon, and **gedera** *Hew.* (41 g), from eastern Ecuador and Colombia, are two very similar forms. Both have vitreous wings with bluish sheen and black-brown margins and half-band on the forewing in addition to a white spot at the end of the cell and 2 whitish patches in the apex of the forewing and on its underside 2 more white dots in the distal margin; in the distal margin of the hindwing a row of dark edged white dots. *edessa.* — **edessa** *Hew.* (41 g) is a similar form from southern Brazil with smaller white spot at the end of the cell of the forewing, yellow-brown margins on the under surface and light base to the hindwing.

pallidula. **H. pallidula** *Hsch.*, from western Ecuador, has yellowish wings with yellow-brown subcostal and a broad stripe on the median of the forewing. The other margins are dark brown, only the distal margin of the hindwing is partly variegated with yellow-brown. At the end of the cell of the forewing and the distal margins there are yellowish dots. In the ♀ only the subcostal of the forewing is yellow-brown, the other margins are brown.

giulia. **H. giulia** *Hew.* (41 g), from Colombia and Venezuela, has a similar ♂ to *pallidula*, with broad yellow-brown subcostal vein and stronger yellowish dots. The ♀ is quite similar, but more brightly marked, with broader margins, yellow oblique band on the forewing and large yellowish dots at the distal margin.

cadra. **H. cadra** *Godm. & Salv.*, from Panama, is said to be similar to *nephele* and *giulia*. The wings are colourless. The dark half-band of the forewing is proximally broader, the band beside it is white, the inner margin yellow-brown.

Addenda.

domiduca. **Napeogenes domiduca** *Hew.* very closely approaches some *Leucothyris*, such as *Leuc. cyrene*; further details are given under the latter, p. 148; from Bolivia.

Alphabetical List

with reference to the original description of the forms of the American Danaidae.
* signifies that the form is also figured at the place cited.

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thabena Pter. *Hew.* Equat. Lep., p. 18.
thea Cer. *Hew.* Exot. Butt. I. *
theaphia Scada *Bat.* Trans. Linn. Soc. Lond. 23, p. 529.
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themisto Thyr. *Hbn.* Zutr. Exot. Schmett. *
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ticidelia Episc. *Hew.* Equat. Lep., p. 21.
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tolosa Nap. *Hew.* Exot. Butt. 1. *
torquatilla Vel. *Hew.* Exot. Butt. 5. *
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tunantina Nap. *Bat.* Trans. Linn. Soc. Lond. 23, p. 534.
tutia Callool. *Hew.* Exot. Butt. 1. *

ucaya Pter. *Hsch.* Berl. Ent. Zschr. 50, p. 174.
ulla Ith. *Hew.* Exot. Butt. 1. *
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xantho Dirc. *Fldr.* Wien. Ent. Mon. 4, p. 101.
xanthophane Dirc. *Hpffr.* Stett. Zg. 1874, p. 338.
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zavaletta Dism. *Hew.* Exot. Butt. 1. *
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zerlina Pter. *Hew.* Exot. Butt. 1. *
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zibia Scada *Hew.* Exot. Butt. 1. *
zitella Sais *Hew.* Exot. Butt. 4. *
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zygia Dism. *Godm. & Salv.* Proc. Zool. Soc. Lond. 1877, p. 61.

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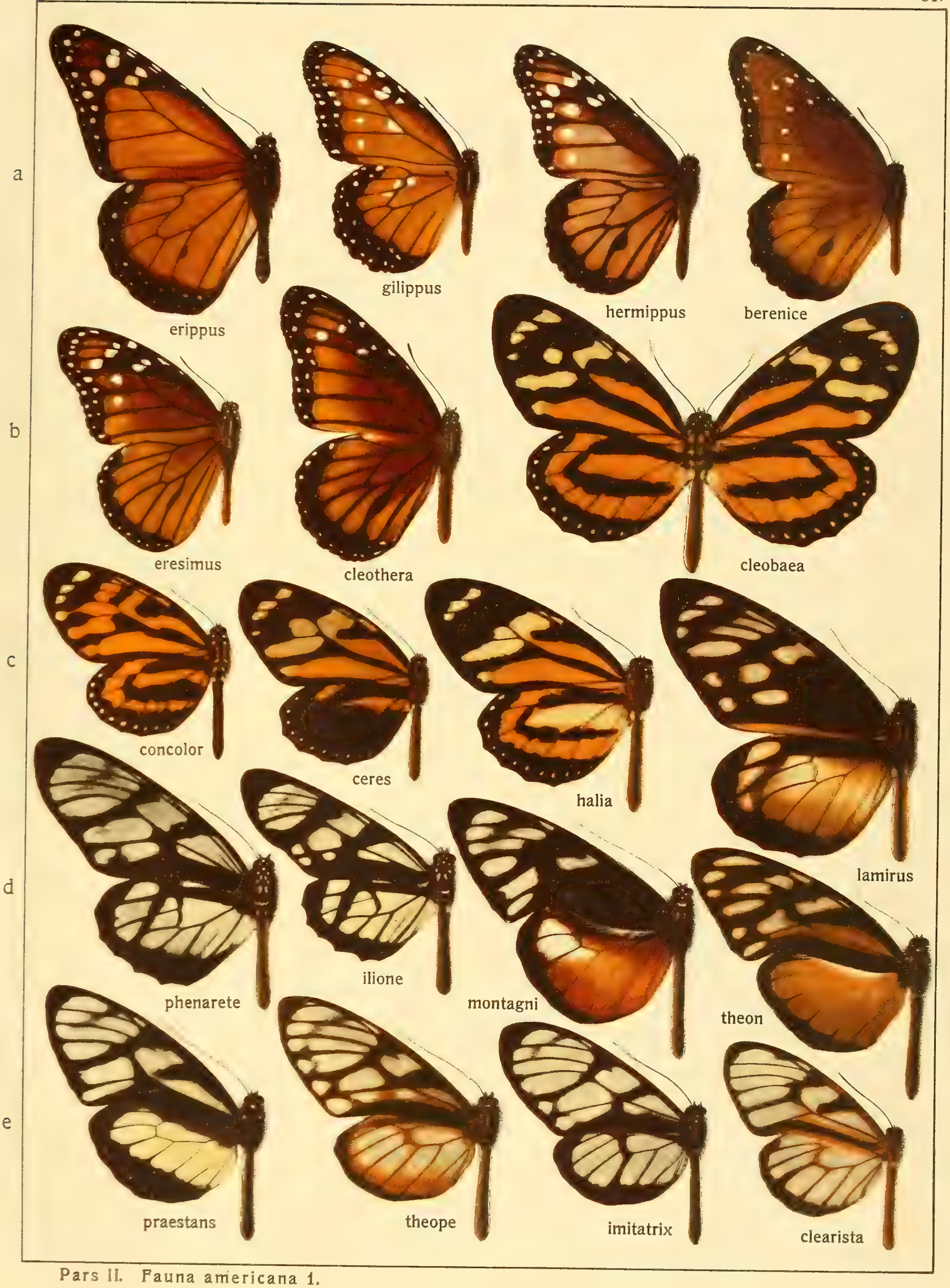
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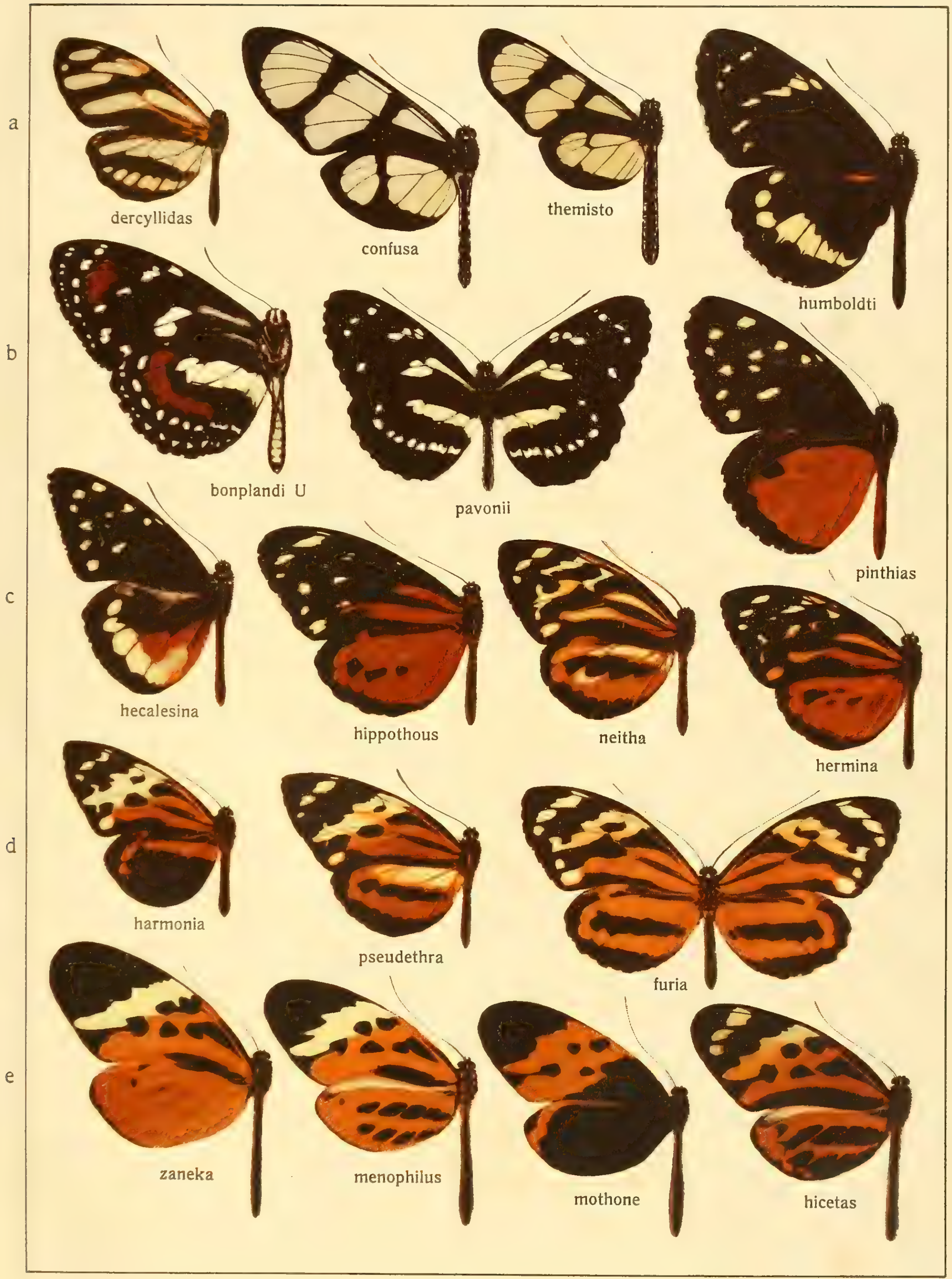
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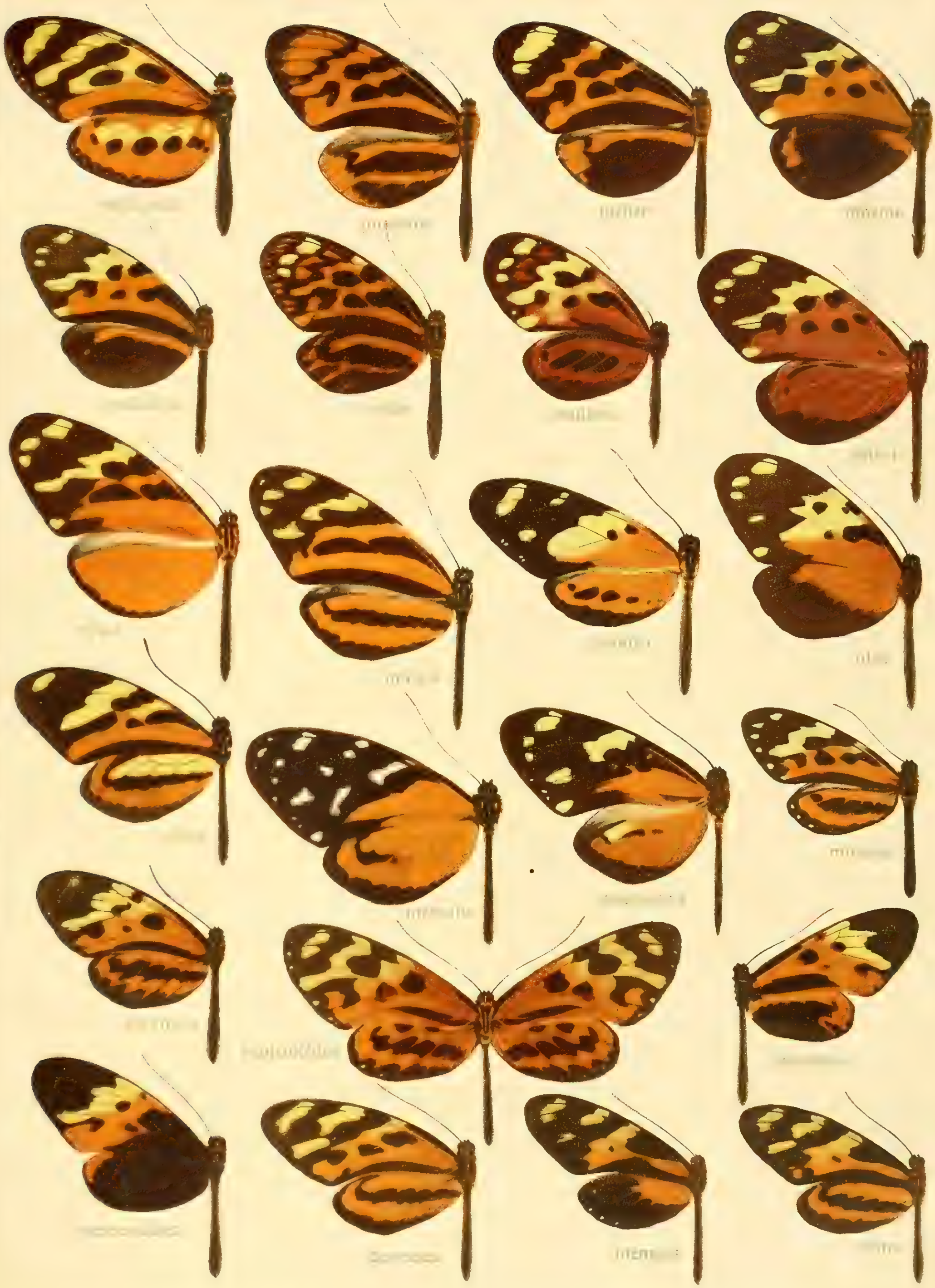

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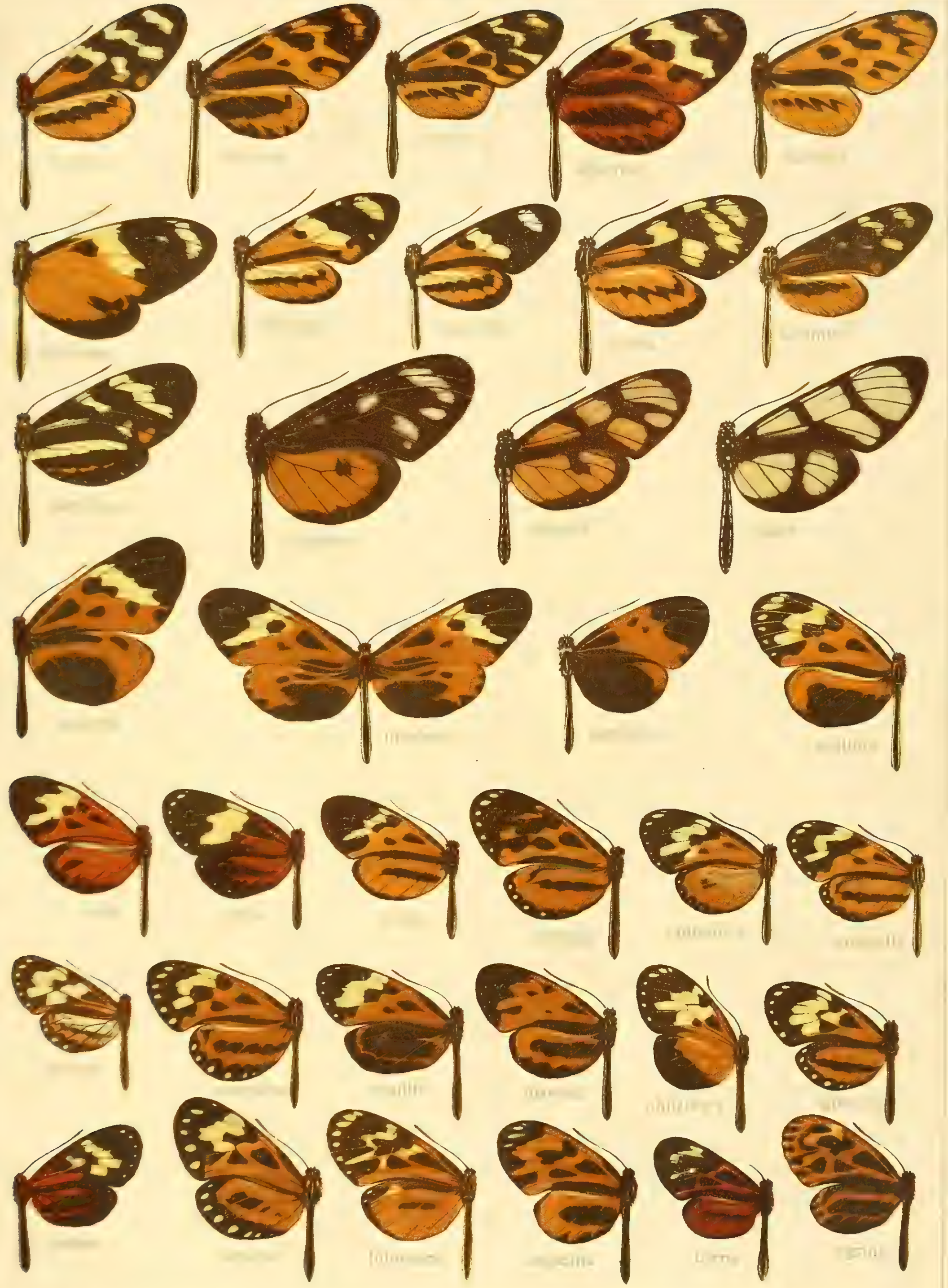

Tafel 11. Fauna americana 1.

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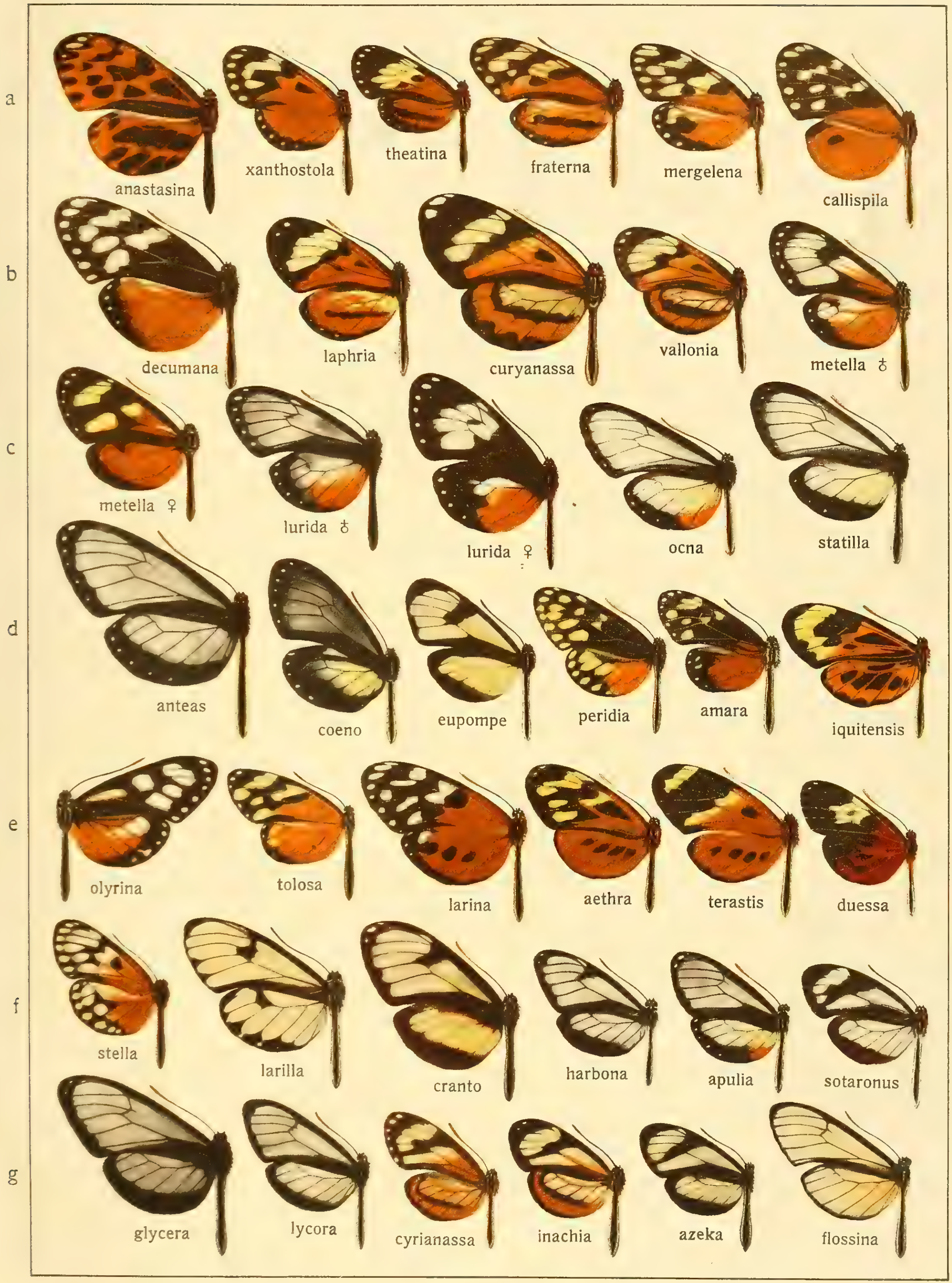
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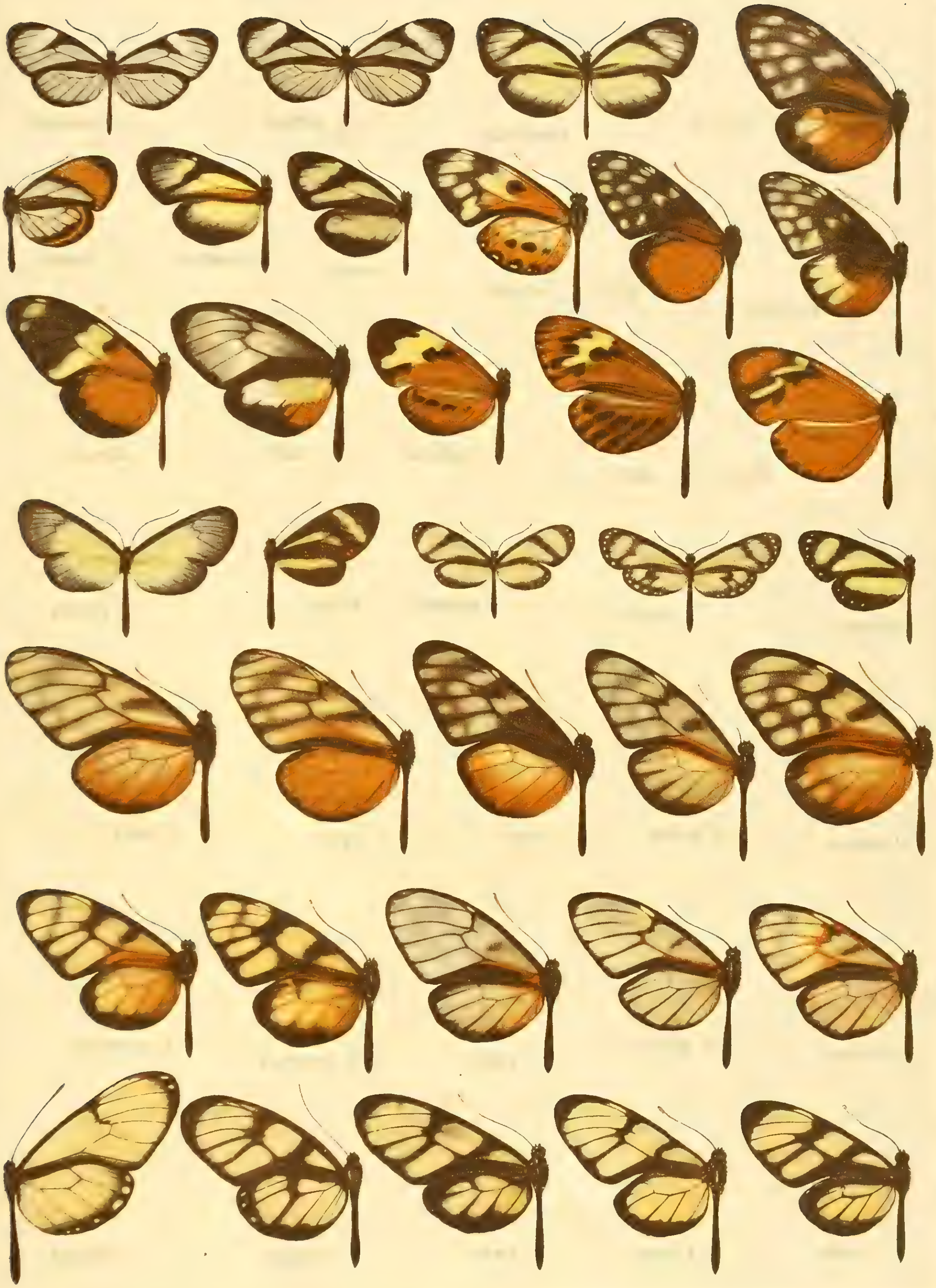

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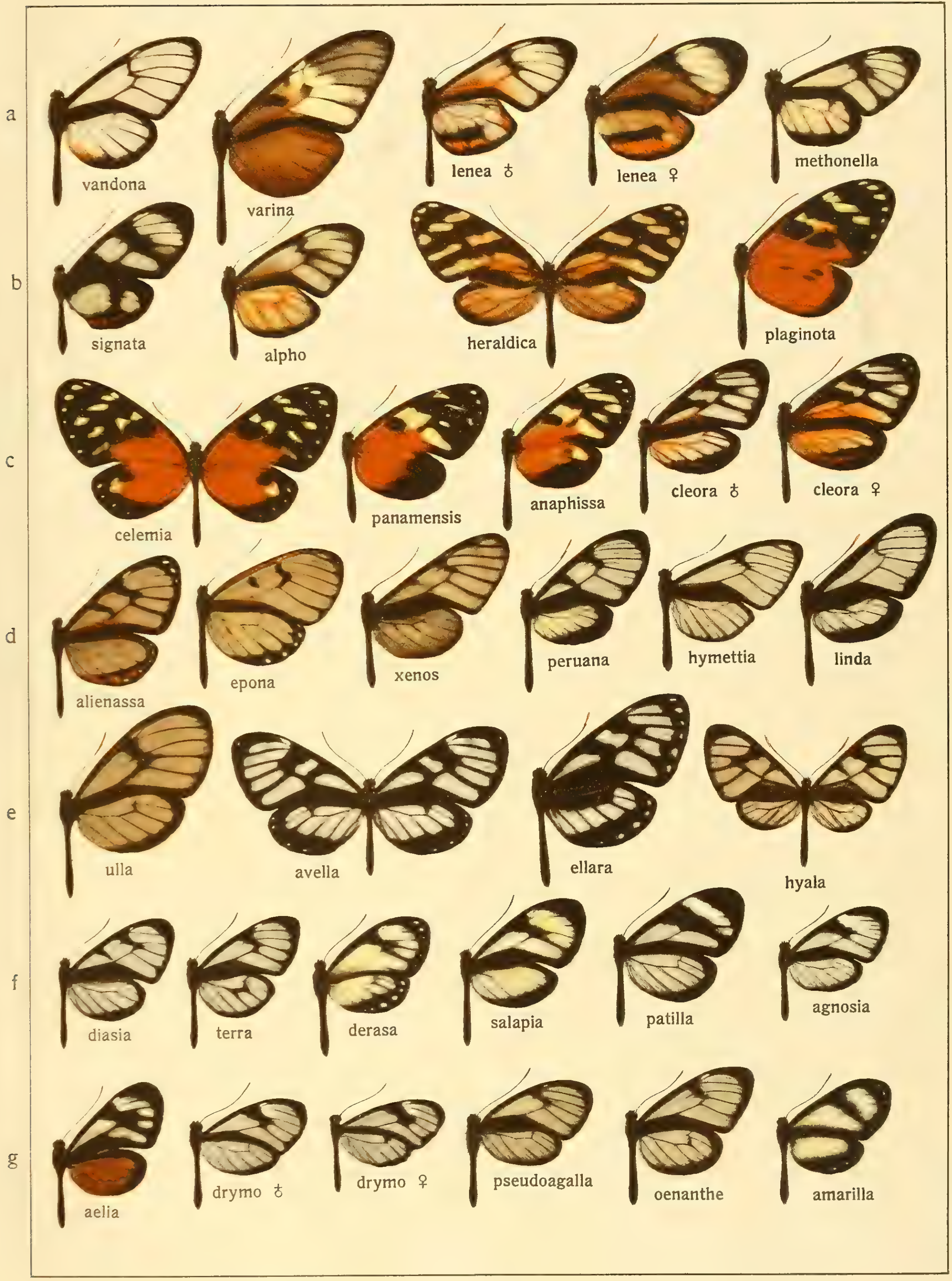
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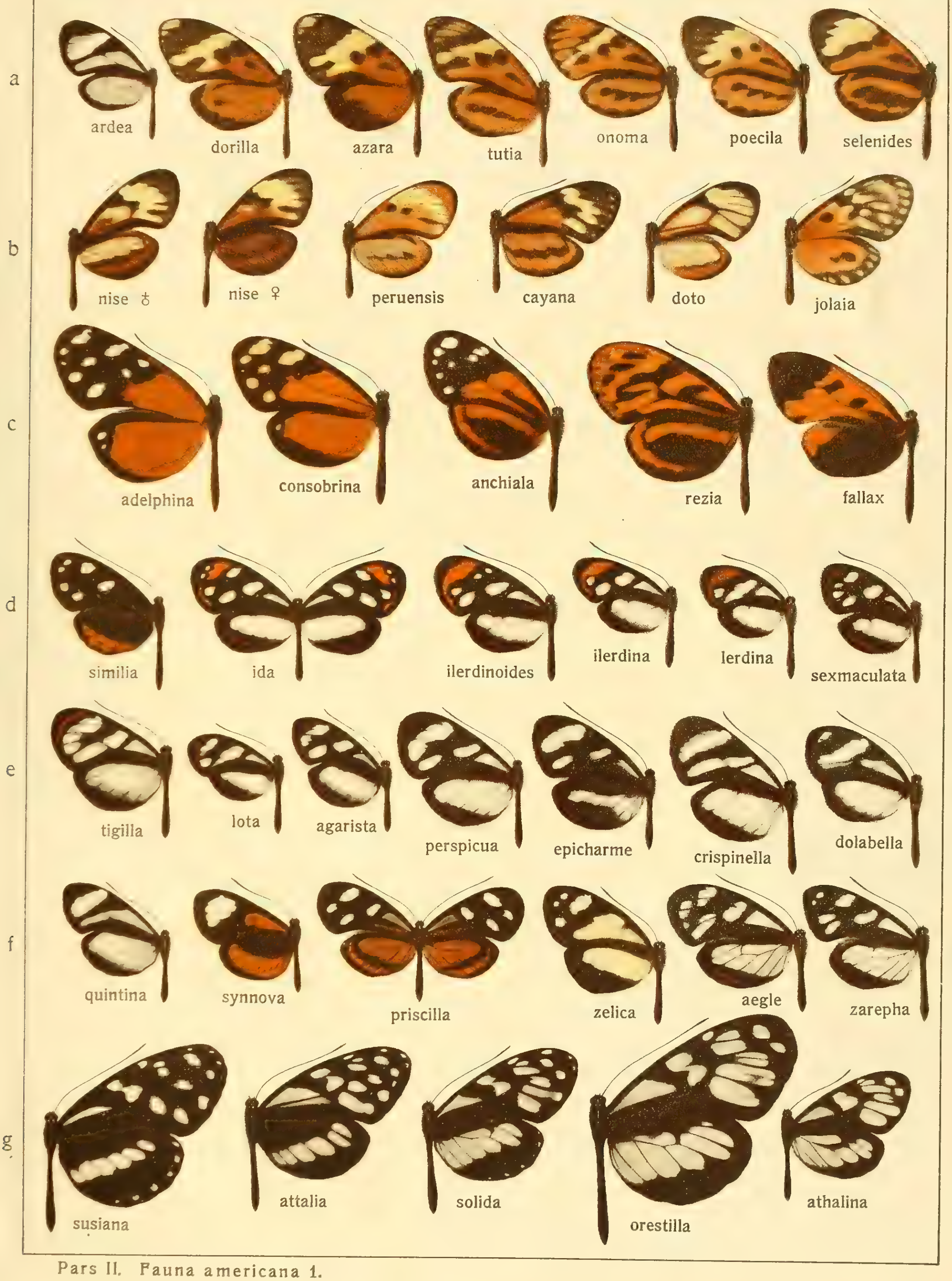
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quintina
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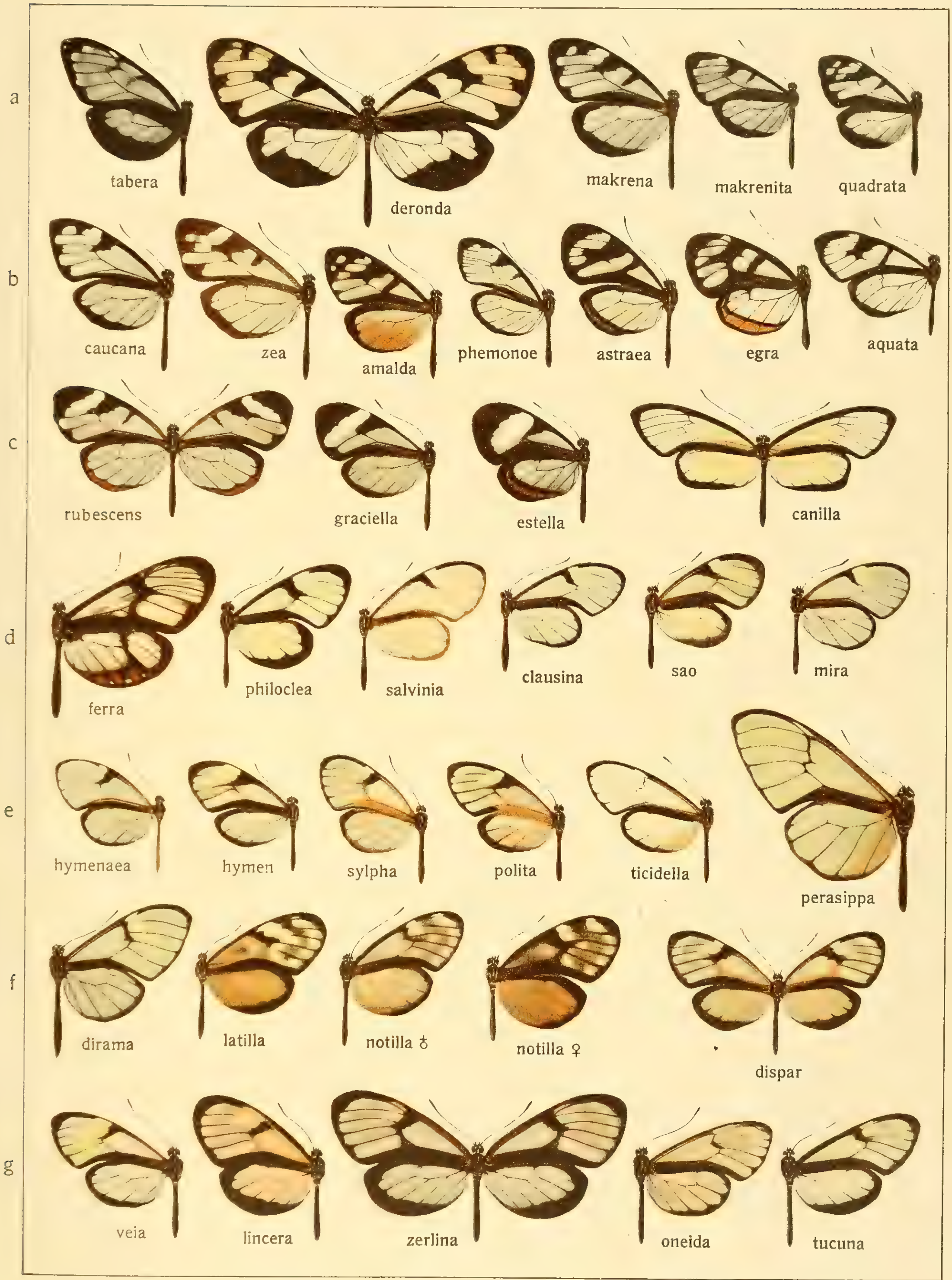
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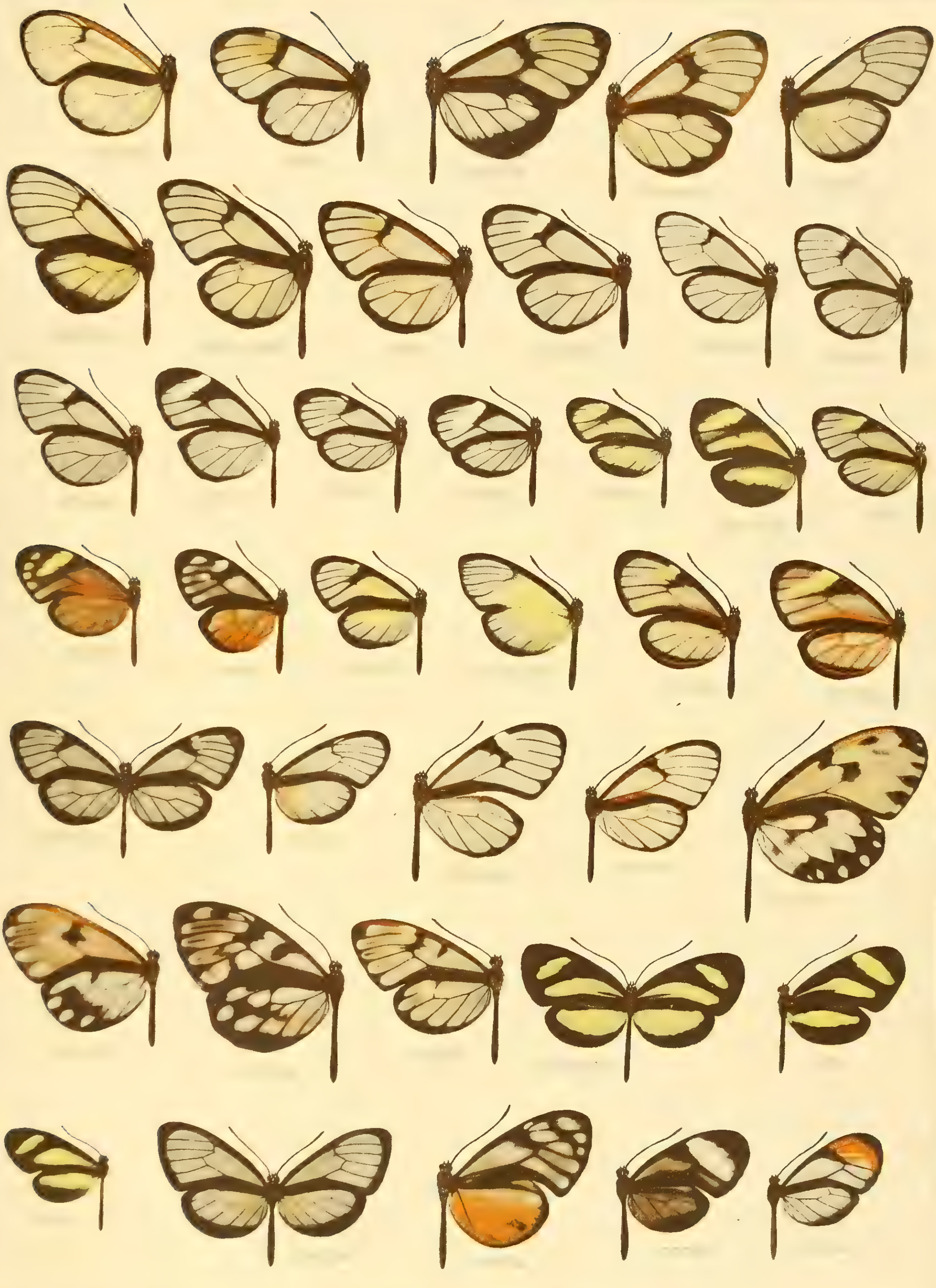

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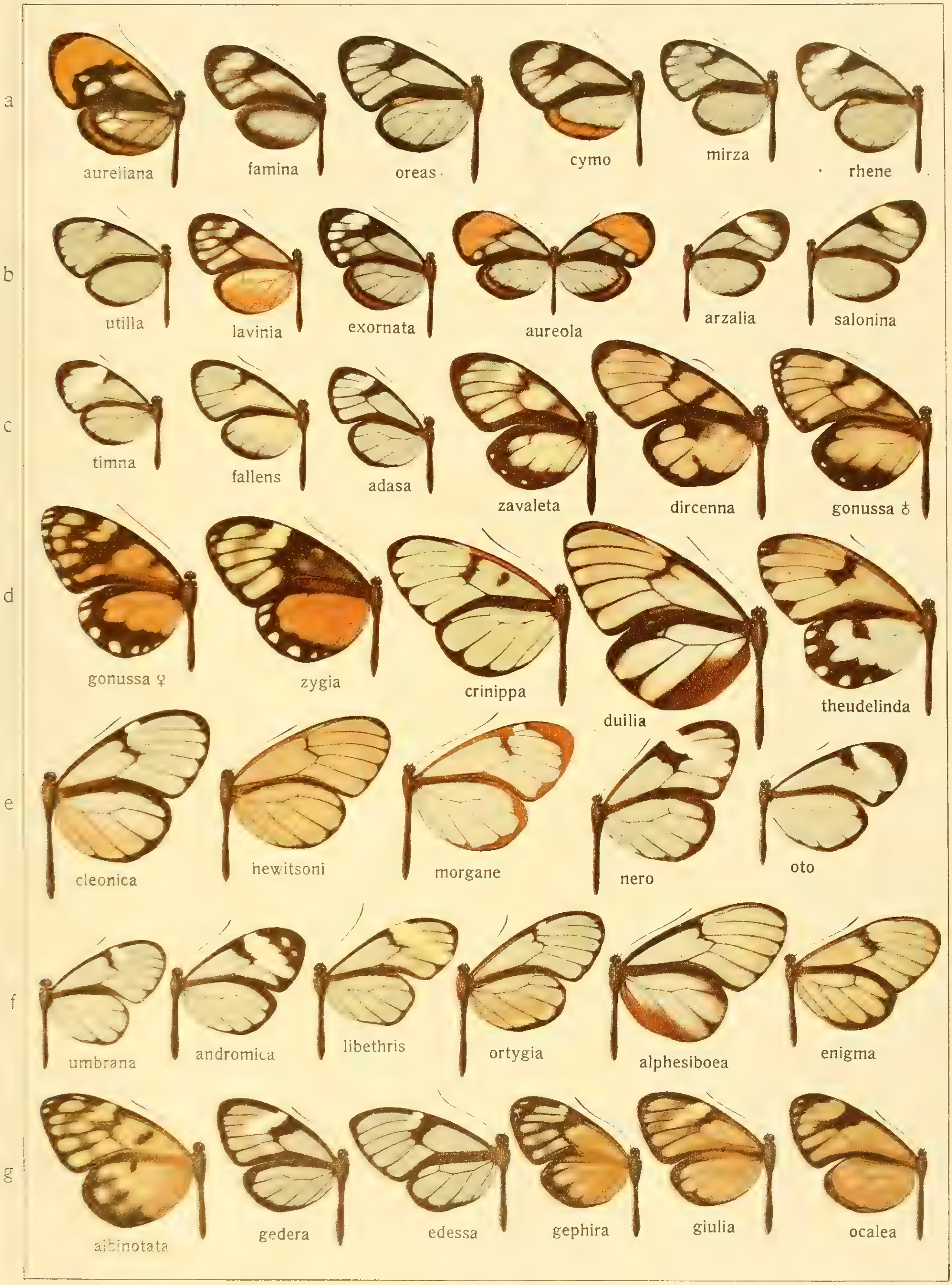
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